APEX 2424
MOBILE STAGE

mobilestages.miami / apex.miami

786-504-2369
786- 255-4949

APEX 3224/2420 GENERAL SPECIFICATION LIST

***Specifications listed are for general reference only. Professional engineering drawings provided with your stage are the ultimate authority for loading/safety and should be adhered to in their entirety at all times.**

TRAILER

Length – 26' (2424), 34' (3224)
Width – 102"
Height – 10'-4"
Cargo Space – 6' 11" x 23' 4" (2424), 6'-11" X 31'-4" (3224)
Cargo Capacity 5,000LBS (2424), 4000LBS (3224)
Trailer Weight 12,400LBS (2424), 13,600LBS (3224)
Tongue Weight - 1,800LBS
Rear Axle Rating –10,000LBS
Front Axle Rating –10,000LBS
GVWR –20,000LBS

STAGE DECK

Floor Size – 24' X 23' – 8" (2424), 32' X 23'-8" (3224)
Floor Height – 46"-66"
Ground to Roof – 23' 1"
Structure – Aluminum / Marine-grade Plywood
Floor Support – Adjustable Jacks, 8,000lb capacity

STAGE ROOF

Covered Roof – 26' 3" x 24' (2424), 26'-3" X 34' (3224)
Deck to Roof Top – based on floor height from ground
Deck to Bottom of Center I-Beams – 15'-4"
Deck to Bottom of Downstage I-Beam – 15'-7"
Deck to Bottom of Upstage I-Beam – 15'-1"
Surface – Aluminum / Fiberglass
*Fly Bay Capacity – 2000lbs
*Downstage I-Beam – 1000lbs evenly distributed
*Upstage I-Beam – 1000lbs evenly distributed
*Center I-Beams – 750lbs evenly distributed
*Roof Side Beams – 500lbs evenly distributed each
*Total Roof Capacity – 13,500lbs
Speaker Wing Bar Slide-Out Length – 2'-3"

OTHER

Install Time – 30minutes to 1 hour
Wind Safety – See High Wind Action Plan (HWAP) on engineering drawings.
Personnel Required – 2 minimum
Site Prep – None
Hauling Mode – No Less than 1 ton Pickup Truck / Semi
Primary Power Source – 5hp Honda Gas Motor
Secondary Power Source – 1.5hp Electric Motor, 110VAC - Optional

TIRES

Tire Size – 235/85/R16 (2420/3224)
Rim Size – 16X6 (2420/3224)
Tire Pressure – See Tire Sidewall (2420/3224)

HYDRAULIC SYSTEM

Hydraulic Fluid Type – AW32 meets regulation HR-2 ASTM D.943

Hydraulic Fluid Filter – CROSS 10 micron

March 10, 2023

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CONNECT

Prepared For
Todd Allison
Progressive Products
3305 Airport Circle
Pittsburg, KS 66762

Re: Engineering Package for the 2424 Mobile Stage
Schaefer Project Number: 22-2017

The attached calculations have been prepared for Progressive Products and pertain to the structural engineering review and non-specific drawing package for the 2424 Mobile Stage. The structure, in its fully deployed condition, has been reviewed according to the 2021 International Building Code and applicable code loads from ASCE 7-16, ASCE 37-14 and ANSI 1.21. The provided seals are not for permitted applications but are provided to indicate an engineering review associated with the referenced design codes above.

The engineering analysis is based on Solidworks models and components provided by Progressive Products via Solidworks files, listed in Appendix "A". The design criteria applied is contained within the engineering calculation package. The seals apply to the calculation package and serve as the technical basis for selected portions of the 2424 Mobile Stage and are not applicable to any site-specific venue. It is incumbent on the owner/operator of the 2424 Mobile Stage to satisfy any local jurisdictional code requirements by hiring a licensed design professional. No portions of the mechanical lift system (winch, gas spring, hydraulics, etc.), mechanical systems as a whole (main trailer, axles, wheels/rims, etc), or roof covering have been analyzed by Schaefer. Schaefer did not review the stability of or the connections of any miscellaneous non-structural components that could be attached to the canopy, such as lights, banners, speakers, etc. High wind loads could cause damage to any attached items, or could cause attached items to break loose, which could result in serious damage or bodily injury. The analysis of 2424 Mobile Stage was only conducted with the assembly in its final, erected condition (ready to be used for performances).

The system has been reviewed for the specific loading conditions as shown in the attached rig plots, as well as specific wind loadings with scrim and without scrim as noted in the calculation package. It is the responsibility of the owner/operator of the stage to ensure that the allowable

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537 East Pete Rose Way, Suite 400
Cincinnati, Ohio 45202
800.542.3302

loads of the system members are not exceeded at any point during erection, production, or dismantling of the stage and roof system.

ANSI E1.21 dictates two different wind conditions at which a roof system and its components should be reviewed for wind speeds. The first is the speed at which the system is fully erected and all wind walls are in place. These wind walls are intended to be removed quickly in advance of a high wind event to reduce the amount of wind applied to the structure. The second speed is the design wind speed, based on length of exposure, which is applied to the fully erected structure with no wind walls.

Since the roof system is erected for less than 6 weeks at a time, the design wind speed is 75% of 90 mph service (115 mph ultimate, 3-second gust). The design wind speed for temporary structures erected less than 6 weeks is 67.5 mph, service (86 mph ultimate). The stage is reviewed at this speed without wind walls in place.

Per the High Wind Action Plan, the stage is reviewed with wind walls in place for a service level design wind speed up to 40 mph. The High Wind Action Plan provides a method for removing the wind walls and to ensure the system can resist loading per the wind conditions stated prior. The high wind action plan also denotes speeds at which rigging should be lowered to the deck so that it cannot swing freely and to damage the structure or injure any personnel who have remained on the stage structure.

In the event of a hurricane or other potential high wind events, there will be several days of notice. The stage structure must be removed and stored in advance of the arrival of hurricane conditions.

The mobile stage must be set-up, taken down, maintained, and operated by trained technicians in accordance with the User Manual. Review and development of the User Manual is outside the scope of Schaefer's review; Schaefer's analysis is predicated on all critical installation instructions that result in compliance of the erected stage with the models and other documents listed in the appendix being incorporated into the User Manual. The mobile stage user must monitor the weather conditions and adhere to the High Wind, Heavy Rain, and Snow/Ice Action Plans, enumerated in the calculation package (assumed to be flowed into a User Manual). Caution shall be exercised with respect to soil bearing conditions at set-up location, mobile stage configuration and equipment loading, environmental hazards, wind conditions, and safety of the mobile stage occupants and passerby. The ability of the existing grade/venue to support the provided loading must be verified by a qualified professional. Bearing conditions (soil, pavement, etc) are unique to each site and must be evaluated for each installation/event. Schaefer has not provided review any site specific existing grade/venue for the provided loading.

The equipment must have been inspected (for structural and operational condition) in the last 12 months by a competent authority, in accordance with ANSI E1.21, for the loading conditions previously described to be valid. The mobile stage shall be reviewed before and after every event for damage or critical defects. Damage must be repaired, and all repairs must be approved and documented by a qualified licensed design professional. Records must be kept of each annual inspection as well as any discovered and repaired damage.

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Schaefer has not reviewed any rigging elements or the attachment of any rigging elements to the stage structures. The design of rigging elements and their attachment to the stage structure shall be reviewed by a qualified professional. This document is not site specific and shall not be construed as a document to be used for permit.

NOTE: It is the responsibility of the venue owner to ensure that the venue can safely support the reactions for the assembly. It is the responsibility of the system owner to satisfy any local jurisdiction requirements by hiring a licensed design professional to review the system for a site specific installation. Schaefer has not analyzed any portion of the site for existing structure that may be used to support the mobile stage and roof system. The attachment of rigging and equipment to the system is not in the scope of Schaefer's services.

Do not hesitate to contact Schaefer should you have any questions regarding this review letter or require further information.

Respectfully,

Rachel Hock

Prepared By:
Rachel Hock, PE
Project Manager

Reviewed By:
Kyle Kusmer, PE
Principal

Enclosure

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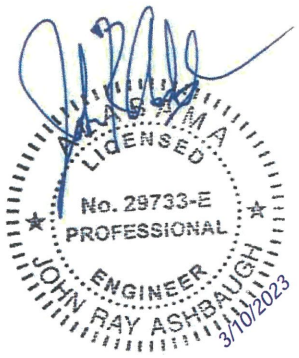

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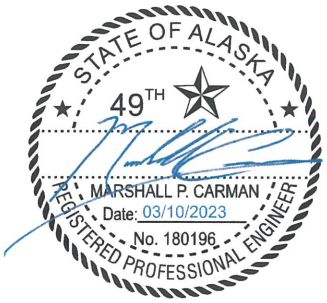

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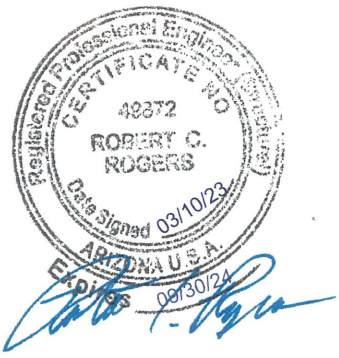

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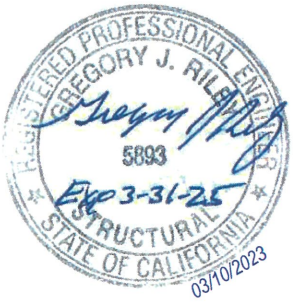

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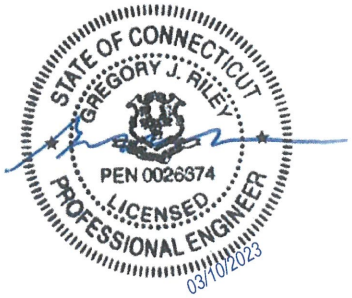

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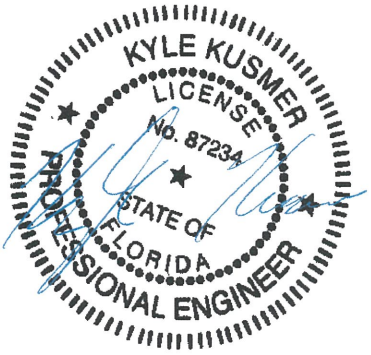

FLORIDA

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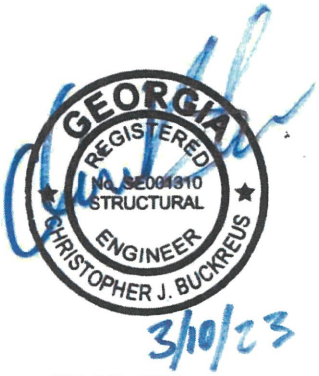

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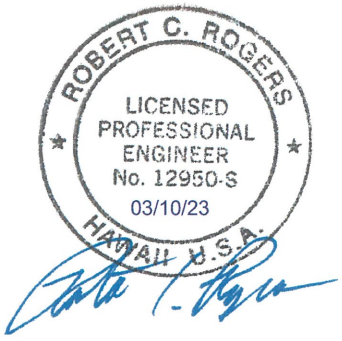

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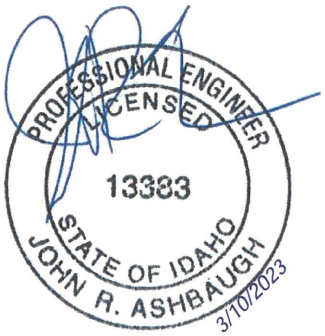

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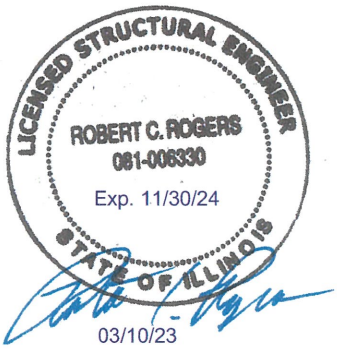

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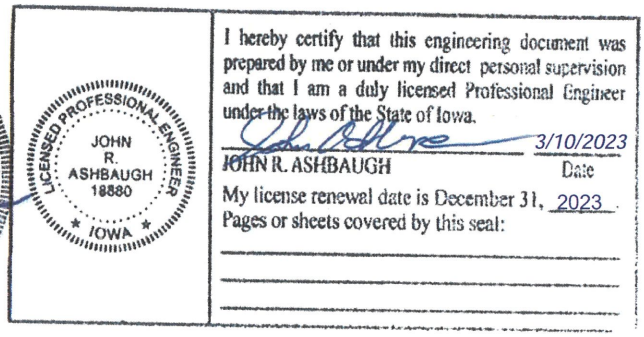

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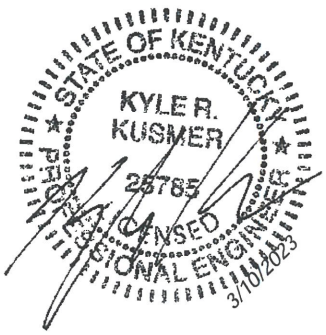

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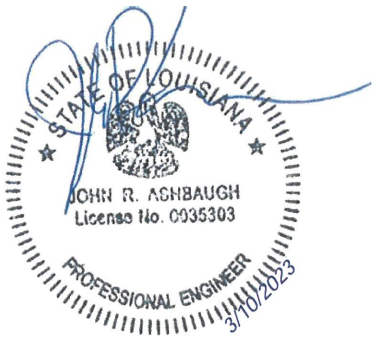

LOUISIANA

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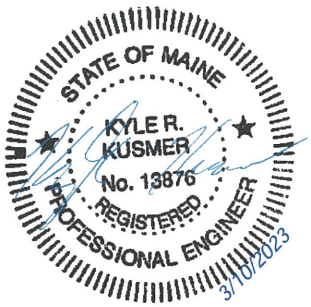

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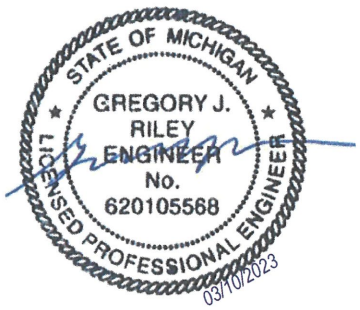

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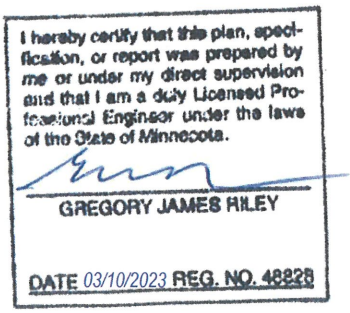

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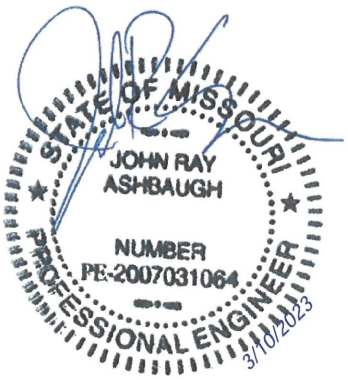

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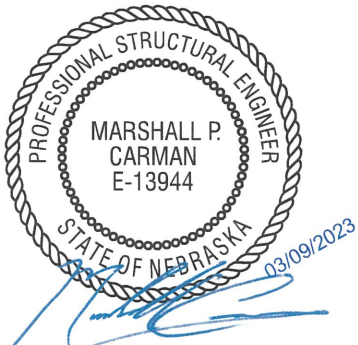

NEBRASKA

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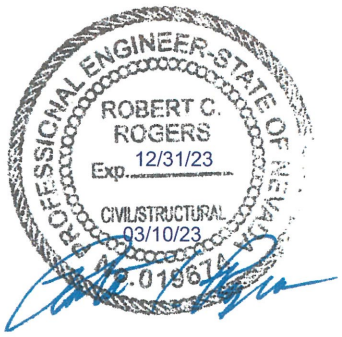

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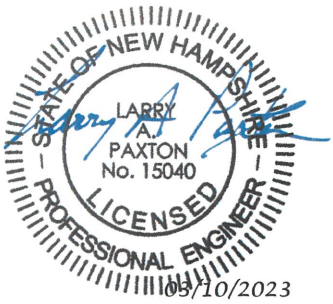

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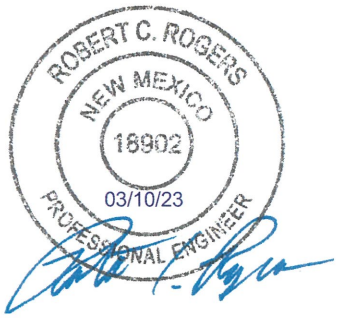

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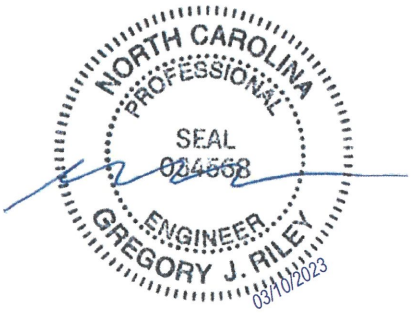
NEW YORK



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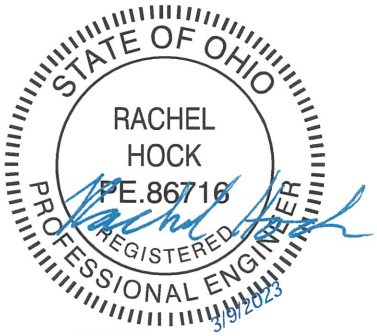

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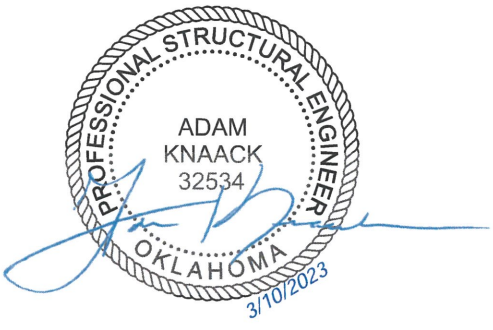

OKLAHOMA

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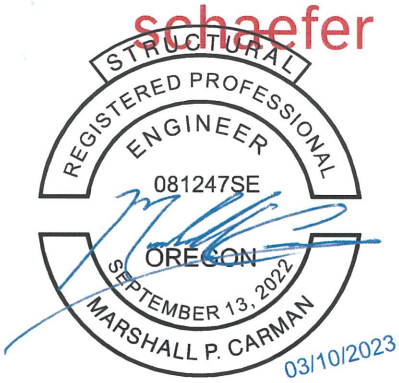
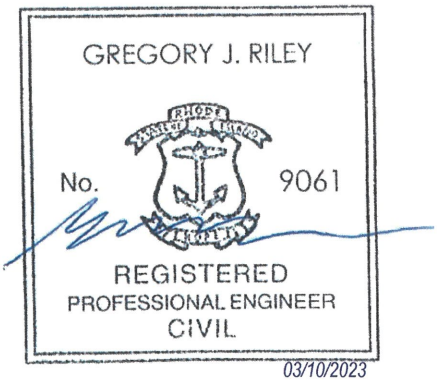


EXPIRES: 12/31/2023

OREGON

PENNSYLVANIA



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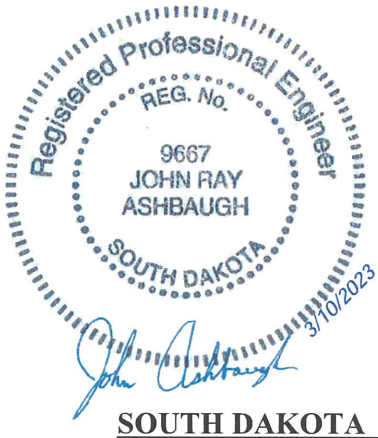
SOUTH CAROLINA



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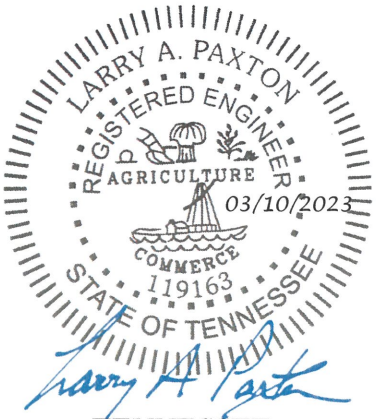

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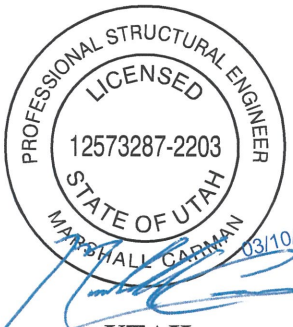
TEXAS



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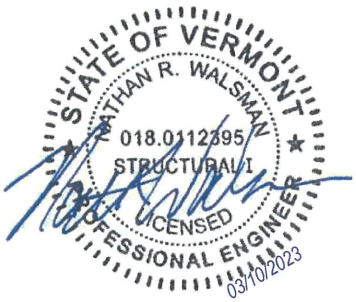

VERMONT

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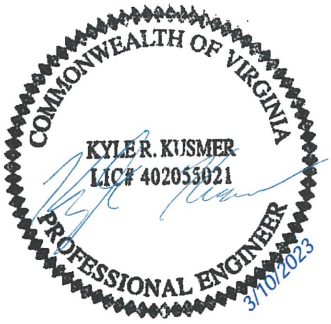

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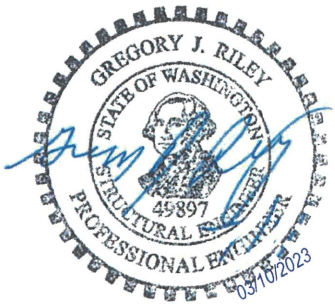

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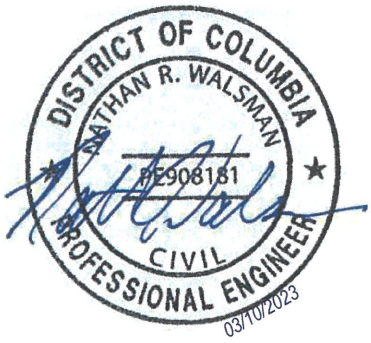
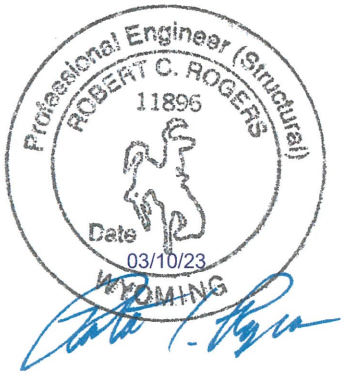


WASHINGTON D.C.

WEST VIRGINIA

WISCONSIN



WYOMING

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TABLE OF CONTENTS

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GENERAL STRUCTURAL NOTES

GOVERNING CODE

2021 INTERNATIONAL BUILDING CODE
ANSI E1.21

THE ANALYSIS IS BASED ON THE DESIGN CRITERIA SHOWN BELOW AND IS NOT SPECIFIC TO ANY SITE OR USE. THESE DOCUMENTS SHALL NOT BE CONSTRUED AS DOCUMENTS TO BE USED FOR PERMIT. SCHAEFER HAS NOT ANALYZED ANY PORTION OF THE LIFTING SYSTEM OR ITS COMPONENTS. THE ANALYSIS OF THIS STRUCTURE IS BASED ON THE ASSEMBLY OF THE STRUCTURE IN ITS FINAL CONDITION.

DESIGN LOADS

1. ROOF LOAD:

   A. STRUCTURE SELFWEIGHT
   B. RIGGING LOADS: SEE DRAWINGS FOR RIGGING LOADS ON STRUCTURE. EVENT SPECIFIC RIGGING PLOTS NOT REVIEWED BY SCHAEFER.
   C. ROOF NOT DESIGN FOR ACCUMULATING RAIN, SNOW OR ICE

2. PLATFORM LOADS:

A.	LIVE LOAD	100 PSF
B.	FRAMING LOAD	5 PSF
	TOTAL LOAD ON ASSEMBLY	105 PSF

3. WIND LOAD (PER ASCE 7, ASCE 37, AND ANSI E1.21):

   A. BASIC WIND SPEED (BWS1) (BASED ON 3-SECOND GUST) = 115 MPH (ULTIMATE), 90 MPH ((SERVICE) APPLIED TO THE STRUCTURAL FRAME AND PERMANENT ATTACHMENTS FOR AN "OPEN" CONDITION MULTIPLIED BY A REDUCTION FACTOR OF 0.75 IN ACCORDANCE WITH ASCE 37-14.
   B. BASIC WIND SPEED (BWS2) (BASED ON 3-SECOND GUST) = 40 MPH (SERVICE) APPLIED TO THE STRUCTURAL FRAME AND PROJECTED AREAS OF THE SCRIMMED WALLS FOR THE "PARTIALLY ENCLOSED" CONDITION
   C. WIND REDUCTION FACTOR = 0.75 (BASED ON ASCE 37-14)
   D. RISK CATEGORY = II
   E. WIND EXPOSURE = C (ALL WIND DIRECTIONS)
   F. INTERNAL PRESSURE COEFFICIENT, GCpi = +0.55, -0.55

4. SEISMIC LOAD:

   A. DOES NOT APPLY FOR MOST LOCATIONS PER ANSI E1.21. SEE NOTE ABOVE REGARDING REQUIRED SITE SPECIFIC REVIEW.

CONSTRUCTION AND SAFETY

1. OPERATOR SHALL BRACE ENTIRE ASSEMBLY AS REQUIRED TO MAINTAIN STABILITY UNTIL COMPLETE AND FUNCTIONING AS THE FULLY OPEN AND LOCKED POSITION. ANALYZED CONDITION INCLUDES ONLY NORMAL LOADING CONDITIONS OCCURRING DURING USE AFTER THE SYSTEM HAS BEEN FULLY ERECTED PER THE OPERATION MANUAL. OUR SCOPE DOES NOT INCLUDE ASSEMBLY DEPLOYMENT MEANS AND METHODS USED DURING DEPLOYMENT OR TAKE-DOWN OF THE ASSEMBLY, OCCURRING PRIOR TO OR AFTER THE IN-USE CONDITION.

2. ENGINEER SHALL NOT BE RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF STAGE ERECTION SELECTED BY OPERATOR.

3. THE OPERATOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE SITE INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING DEPLOYMENT AND TAKE-DOWN PROCESSES. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND IS NOT LIMITED TO NORMAL WORKING HOURS. WHEN ON SITE, THE ENGINEER IS RESPONSIBLE FOR THEIR OWN SAFETY BUT HAS NO RESPONSIBILITY FOR THE SAFETY OF THE OTHER PERSONNEL OR SAFETY CONDITIONS AT THE SITE.

4. THE ROOF COVERING IS CONSIDERED A "SUN-SHADE" SYSTEM ONLY SUCH AS FABRIC OR SCRIM (ONLY SELF WEIGHT CONSIDERED) AND IS NOT INTENDED FOR PERSONNEL ACCESS OR SUPPORT.

STRUCTURAL STEEL

1. ALL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO AISC SPECIFICATIONS FOR "DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", AND THE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", LATEST EDITION.

2. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWS D1.1).

3. MATERIALS:

   A. PLATES UNLESS NOTED: A36

   B. PIPE SHAPES (HSS SQUARE): ASTM A500 Fy = 46 KSI MIN.

   C. BOLTS OR TRUSS CONNECTION PINS: SAE GRADE 5.

   D. DOWEL PINS – STEEL YIELD STRENGTH 75,000 PSI, UNO.

   E. WELD FILLER: E70XX

4. PAINT AND PROTECTION:

   A. STRUCTURAL STEEL UNLESS NOTED: FABRICATOR'S STANDARD PRIME COAT AND FINISH COATS.

WIRE ROPE AND ACCESSORIES

1. ALL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO THESE GENERAL NOTES AND ACCOMPANYING DRAWINGS AND SPECIFICATIONS.

2. MATERIALS:

   A. STEEL WIRE ROPE: GALVANIZED 6x19 IWRC OR STRAND CORE, FED. SPEC. RR-W-410. SIZE AS INDICATED ON STRUCTURAL DRAWINGS.

   B. SHACKLES: GALVANIZED STEEL, ASTM A153.

   C. WIRE ROPE CLIPS: CROSBY FORGED STEEL WIRE ROPE CLIPS (OR EQUAL), FED. SPEC. C-450, TYPE 1, CLASS 1.

   D. THIMBLES: GALVANIZED STEEL, FED. SPEC. FF-T-276b.

   E. TURNBUCKLES: FORGED GALVANIZED STEEL, ASTM F-1145-92.

3. ALL WIRE ROPE COMPONENTS SHALL BE INSTALLED ACCORDING TO MANUFACTURER RECOMMENDATIONS (PER THE CROSBY GROUP, INC; OR EQUAL). TORQUE WIRE ROPE CLIPS TO MANUFACTURERS RECOMMENDATIONS. INSPECT ALL MATERIALS PRIOR TO USE; REMOVE ANY DAMAGED, CRACKED OR ABRADED MATERIALS FROM SERVICE.

FOUNDATIONS

1. FOUNDATIONS AND SUBGRADE CONDITIONS ARE NOT IN SCHAEFER'S SCOPE AND ARE SITE SPECIFIC. ALL ASSEMBLIES SHALL BEAR ON LEVEL (WITHIN 1 IN 12) GROUND.
   - **A.** ASSUMED COEFFICIENT OF FRICTION: 0.35
   - **B.** MAXIMUM LOAD AT SUBGRADE CONTACT POINT: 2500 LBS

ALUMINUM

1. ALL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO THE ALUMINUM ASSOCIATION "ALUMINUM DESIGN MANUAL – SPECIFICATIONS AND GUIDELINES FOR ALUMINUM STRUCTURES", LATEST EDITION.

2. FIELD CONNECTIONS SHALL BE BOLTED EXCEPT WHERE WELDED CONNECTIONS ARE INDICATED ON THE STRUCTURAL DRAWINGS.

3. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWS D1.2:2014). WELDERS SHALL BE CERTIFIED BY THE AMERICAN WELDING SOCIETY (AWS D1.2:2014). WELDING PROCEDURES THAT ARE PREQUALIFIED UNDER AWS SHALL BE DOCUMENTED ACCORDING TO AWS PROCEDURES.

4. MATERIALS SHALL COMPLY WITH THE ALUMINUM ASSOCIATION "ALUMINUM DESIGN MANUAL – SPECIFICATIONS AND GUIDELINES FOR ALUMINUM STRUCTURES", LATEST EDITION :

   A. SHEETS AND PLATES – ASTM B 209: 6061-T6, Ftu = 42 KSI, Fty = 35 KSI, Fcy = 35 KSI, Fsu = 27 KSI.

   B. EXTRUDED BARS, RODS, WIRES, PROFILES AND TUBES – ASTM B 221: 6061-T6, Ftu = 38 KSI, Fty = 35 KSI, Fcy = 35 KSI, Fsu = 24 KSI

   C. EXTRUDED STRUCTURAL PIPE – ASTM B 429: 6061-T6, Ftu = 38 KSI, Fty = 35 KSI, Fcy = 35 KSI, Fsu = 24 KSI

   D. ROD AND BAR – ASTM B 211: 6061-T6, Ftu = 42 KSI, Fty = 35 KSI, Fcy = 35 KSI, Fsu = 25 KSI

   E. DRAWN SEAMLESS TUBES – ASTM B 210: 6061-T6, Ftu = 42 KSI, Fty = 35 KSI, Fcy = 35 KSI, Fsu = 27 KSI

   F. SEAMLESS PIPE AND SEAMLESS EXTRUDED TUBE – ASTM B 241: 6061-T6, Ftu = 38 KSI, Fty = 35 KSI, Fcy = 35 KSI, Fsu = 24 KSI

   G. STANDARD STRUCTURAL PROFILES – ASTM B 308: 6061-T6, Ftu = 38 KSI, Fty = 35 KSI, Fcy = 35 KSI, Fsu = 24 KSI

   H. ALUMINUM BOLTS – ADM F 468: 6061-T6, 3/4" DIAMETER UNLESS NOTED.

   I. STAINLESS STEEL BOLT – ASCE 8 F593: 304SS, 3/4" DIAMETER UNLESS NOTED.

   J. WELD FILLER: 4043

5. FASTENERS AND OTHER COMPONENTS OF MATERIAL OTHER THAN ALUMINUM SHALL BE DESIGNED IN ACCORDANCE WITH PERTINENT STANDARD.

6. REMOVAL OF SURFACE COATINGS SHALL BE DONE IN A MANNER TO ENSURE THE CHEMICAL PROCESS WILL NOT AFFECT THE MECHANICAL PROPERTIES OF THE ALUMINUM. ABRASION BLASTING SHALL NOT BE PERFORMED ON MATERIAL LESS THAN OR EQUAL TO 1/8" THICK

WOOD

1. MATERIALS

   A. SHEATHING AND SUBFLOORING

      1. MATERIALS:
         a. FLOOR SHEATHING: ¾" APA SPAN RATING 24"oc,

TEMPORARY STRUCTURES

1. THE STRUCTURES SHOWN ON THE ACCOMPANYING DRAWINGS AND DOCUMENTS HAVE BEEN ANALYZED AND REVIEWED FOR AN INSTALLATION NOT TO EXCEED 6 WEEKS.

2. TEMPORARY STRUCTURES ARE INTENDED FOR THE USE AND PURPOSE SPECIFICALLY DETAILED ON THE ACCOMPANYING DRAWINGS. THEY SHALL NOT BE USED FOR ANY OTHER PURPOSE. THEY ARE SPECIFICALLY EXCLUDED FROM REMAINING PERMANENTLY ON THIS SITE.

3. PERIODIC INSPECTION:

   A. BEFORE EACH USE:
      1. CHECK FOR BENT COMPONENTS, BROKEN OR CRACKED WELDS, TORN PLATES OR DETERIORATED CONNECTION HARDWARE.

   B. ANNUALLY:
      1. PERFORM A THOROUGH INSPECTION OF ALL COMPONENTS CHECKING FOR:
         a. WORN OR ABRADED COMPONENTS. SPECIFICALLY CHECK FOR REDUCTIONS IN AREA OF MEMBER COMPONENTS DUE TO ABBRASION.
         b. CHECK WELDS FOR CRACKS OR TEARS AT ALL LOCATIONS.
         c. CHECK HARDWARE FOR EXCESSIVE WEAR AT BEARING SURFACES AND FOR DEFORMATION DUE TO OVERLOAD.

   C. REMOVE ALL WORN OR DETERIORATED EQUIPMENT FROM SERVICE.

   D. FOR MANUFACTURED SYSTEMS: FOLLOW ALL MANUFACTURERS RECOMMENDATIONS FOR PERIODIC INSPECTION, MAINTENANCE AND REPAIR.

HIGH WIND LOAD ACTION PLAN (HWAP) REQUIREMENTS

1. THE HWAP DEFINES WIND DESIGN SPEEDS FOR AN "OPEN MAIN STAGE ROOF SYSTEM" AND A "PARTIALLY ENCLOSED MAIN STAGE ROOF SYSTEM".

   A. AN "OPEN MAIN STAGE ROOF SYSTEM" SHALL BE DEFINED BY A CONDITION WHERE THE MAIN STAGE ROOF STRUCTURE IS FULLY ERECTED WITH NO WALL PANELS OR STAGE EQUIPMENT INSTALLED ON THE ROOF STRUCTURE.

   B. A "PARTIALLY ENCLOSED MAIN STAGE ROOF SYSTEM" SHALL BE DEFINED BY A CONDITION WHERE THE MAIN STAGE ROOF STRUCTURE IS FULLY ERECTED WITH SIDESTAGE OR BACKSTAGE WALL PANELS OR STAGE EQUIPMENT INSTALLED ON THE ROOF STRUCTURE.

   C. WIND DESIGN SPEEDS FOR THE "OPEN" CONDITION AND THE "PARTIALLY ENCLOSED" CONDITION ARE DEFINED IN THE "LOADS" SECTION, ABOVE.

2. THE PURPOSE OF THE HWAP IS TO MITIGATE RISK TO STRUCTURE AND HUMAN LIFE DURING BSW1 WIND CONDITIONS IN THE MOBILE STAGE AREA.

A. THE HWAP PROVIDES A MEANS OF RESPONDING TO INCREASING WIND LOAD DURING PERIODS OF VENUE OPERATION.

B. THE HWAP IS INTENDED TO PROVIDE A METHOD FOR REDUCING THE PROJECTED WIND AREA ON THE MOBILE STAGE ONLY.

C. THE HWAP PERTAINS TO REMOVAL OF MOBILE STAGE SIDE WALLS AND BACK WALLS ONLY.

D. THE HWAP SHALL BE IN FORCE AT ANY TIME WHEN THE MOBILE STAGE FABRIC SIDEWALLS AND BACK WALLS ARE INSTALLED.

E. THE HWAP IS NOT REQUIRED WHEN THE MOBILE STAGE SIDEWALLS AND BACKWALLS ARE NOT INSTALLED.

3. THE FOLLOWING PROVISIONS MUST BE MET PRIOR TO IMPLEMENTATION OF THE HWAP;

A. THE FABRIC SIDEWALL AND BACKWALL INSTALLATION METHOD MUST ALLOW FOR THESE UNITS TO BE LOWERED IN A CONTROLLED FASHION IN LESS THAT 5 MINUTES FROM NOTICE OF PUTTING THE HWAP INTO ACTION.

B. SPECIFIC INSTALLATION DETAILS, INCLUDING FOR FABRIC SIDEWALLS AND BACKWALL, MUST BY APPROVED BY THE ENGINEER OF RECORD.

4. HWAP TRAINING:

A. THE ASSEMBLY/VENUE OPERATOR SHALL PROVIDE FOR HWAP TRAINING OR ENSURE THAT THE TRAINING IS PROVIDED BY OTHERS.

B. TRAINING SPECIFICS:

1. A DOCUMENTED RECORD OF TRAINING SHALL BE KEPT ON SITE AND IN THE ASSEMBLY/VENUE OPERATORS GENERAL OFFICES.
2. ALL HWAP TRAINED PERSONNEL SHALL BE RETRAINED AFTER A PERIOD OF 3 YEARS OR AFTER THEY HAVE NOT WORKED WITH THE MOBILE STAGE UNITFOR A PERIOD OF 1 YEAR.
3. A MOBILIZATION MEETING SHALL TAKE PLACE AT THE BEGINNING OF EACH EVENT TO DEFINE SPECIFIC RESPONSIBILITIES FOR ONSITE HWAP PERSONNEL.
4. AN HWAP CREW MANAGER SHALL BE DESIGNATED DURING THE MOBILIZATION MEETING.
5. THE HWAP CREW MANAGER SHALL HAVE AUTHORITY TO IMPLEMENT THE HWAP AT ANY TIME AND UNDER ANY CIRCUMSTANCES THEY SEE FIT.

5. HIGH WIND ACTION PLAN:

A. THE HWAP SHALL BE IN FORCE WHEN ANY OF THE FOLLOWING CONDITIONS OCCUR:

1. FABRIC SIDEWALLS AND/OR BACKWALLS ARE INSTALLED ON THE MAIN STAGE ROOF SYSTEM.

2. THE VENUE IS BEING USED FOR AN EVENT.
   a. AN EVENT SHALL BE DEFINED AS ANY CONCERT, REHEARSAL, RENTAL OR ANY OTHER PROFESSIONAL OR COMMERCIAL USE OF THE STAGE SPACE BY ANY PARTY THAT IN ANY WAY REQUIRES USE OF STAGING EQUIPMENT TO BE ATTACHED TO THE MAIN STAGE ROOF STRUCTURE.
   b. EXCEPTION:
      (1) AN EXCEPTION SHALL BE ALLOWED IF THE EQUIPMENT INSTALLED ON THE MAIN ROOF UNIT PRESENTS A PROJECTED WIND AREA OF LESS THAN 2% OF THE BARE ROOF AREA AND

(2) NO SIDEWALLS OR BACKWALLS OF ANY KIND ARE INSTALLED ON THE MAIN STAGE ROOF SYSTEM.

B. THE HWAP SHALL GOVERN OPERATING CONDITIONS DURING A TIME PERIOD THAT SHALL COMMENCE AT THE BEGINNING OF PRE-EVENT OPERATIONS AND SHALL CONTINUE TO SUCH TIME WHEN ALL PERSONNEL AND EQUIPMENT HAVE BEEN REMOVED FROM THE VENUE AT THE CLOSE OF THE SPECIFIC EVENT.

C. **MONITORING OF SITE WIND CONDITIONS:** ACTIVE ON SITE WIND MONITORING SHALL BE MAINTAINED FOR THE DURATION OF THE MAIN STAGE ROOF SYSTEM ERECTION UNLESS THE WALL PANELS ARE LOWERED TO REDUCE WIND PRESSURE.

1. **WIND SPEED MONITORING (ANEMOMETERS):** ACTIVE ON-SITE WIND MONITORING SHALL CONSIST ANEMOMETERS ERECTED AT AN ELEVATION WITHIN 5' +/- OF THE HIGHEST COMPONENT OF THE ASSEMBLY'S ROOF SYSTEM. THE ANEMOMETER SHALL BE LOCATED CLEAR OF ANY COMPONENTS THAT MIGHT SHIELD IT FROM THE WIND.

2. **LOCAL WEATHER SERVICE MONITORING:** REAL-TIME MONITORING OF A LOCAL LINK TO THE NATIONAL WEATHER SERVICE (THIS MAY BE A LINK TO A LOCAL COMMERCIAL OR GOVERNMENT SERVICE) SHALL BE MAINTAINED BY THE HWAP CREW. REAL-TIME MONITORING SHALL BE INSTALLED IF WIND SPEEDS GREATER THAN 20 MPH ARE ANTICIPATED.

3. **ACCESS DURING MONITORING:** ACCESS IN THE VICINITY OF THE ROOF STRUCTURE SHALL ONLY BE ALLOWED WHILE MONITORING IS MAINTAINED.

D. THE FOLLOWING HIGH-WIND ACTION PLAN MUST BE POSTED IN A CONSPICUOUS AREA ON STIE. IT MUST BE PROTECTED FROM THE WEATHER AND AVAILABLE AT ALL TIMES TO VENUE OPERATORS AND CREW AND ANY AUTHORITY HAVING JURISDICTION RELATING TO THESE MATER.

1. **WHEN WIND GUSTS EXCEED 30 MPH:** MOBILIZE THE HWAP CREW AND HAVE THE NECESSARY PERSONNEL IN PLACE AND ON STANDBY. CEASE ALL SHOW OPERATIONS. EVACUATE ALL AUDIENCE MEMBERS AND CREW FROM THE IMMEDIATE VICINITY OF THE MAIN STAGE ROOF SYSTEM EXCEPT HWAP CREW PERSONNEL. LOWER ALL RIGGING COMPONENTS TO STAGE DECK.

2. **WHEN WIND GUSTS EXCEED 35 MPH**: LOWER, REMOVE OR CUT WALL PANELS TO REDUCE WIND LOAD ON THE STRUCTURE. LOWERING OR REMOVAL OF WALL PANELS MUST BE ACCOMPLISHED FROM THE GROUND. **NO PERSONNEL MAY CLIMB THE STRUCTURE TO EFFECT LOWERING OF THE SIDE PANELS.** THESE SYSTEMS MAY INCLUDE ELECTRICAL LOWERING DEVICES, MECHANICAL RELEASE SYSTEMS OR OTHER SYSTEMS THAT ALLOW THE WALL PANELS TO BE BROUGHT TO THE GROUND IN LESS THAN 5 MINUTES.

3. **WHEN WIND GUSTS EXCEED 40 MPH:** ALL WALL PANELS MUST BE FULLY LOWERED AND SECURED AT GROUND LEVEL. **IF WALL PANELS HAVE NOT BEEN REMOVED** WHEN WIND SPEED EXCEEDS 40 MPH, ALL PERSONNEL SHOULD MAINTAIN A SAFE CLEAR DISTANCE FROM THE ROOF SYSTEM AS COLLAPSE OF THE ROOF OR MOVEMENT OF THE STRUCTURE MAY OCCUR.

ONCE WALL PANELS HAVE BEEN REMOVED FROM THE ROOF SYSTEM INSTALLED, THE MOBILE STAGE IS DESIGNED FOR BWS1.

2424 MOBILE STAGE
GENERAL STRUCTURAL NOTES
SCHAEFER, PROJECT #22-2017
3/9/2023

HEAVY RAIN ACTION PLAN

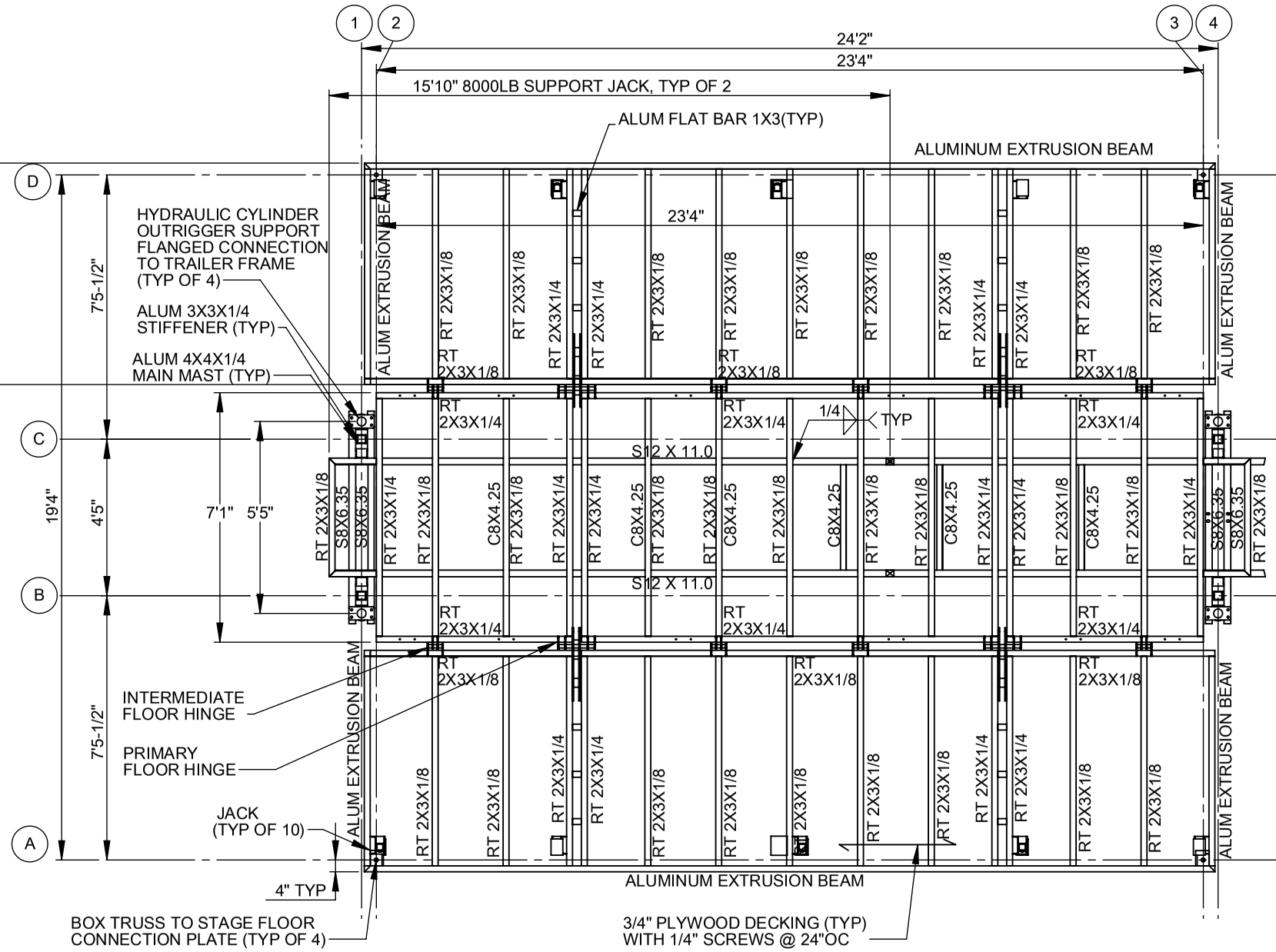
1. AT NO TIME DURING A RAIN EVENT SHOULD WATER BE ALLOWED TO ACCUMULATE ON THE SUN SHADE SYSTEM.

2. IF RAINWATER IS ALLOWED TO ACCUMULATE ON THE "SUN-SHADE" SYSTEM, ALL PERSONNEL SHOULD EVACUATE THE ASSEMBLY AND MAINTAIN SAFE CLEAR DISTANCE AS COLLAPSE OF THE ROOF IS POTENTIALLY IMMINENT.

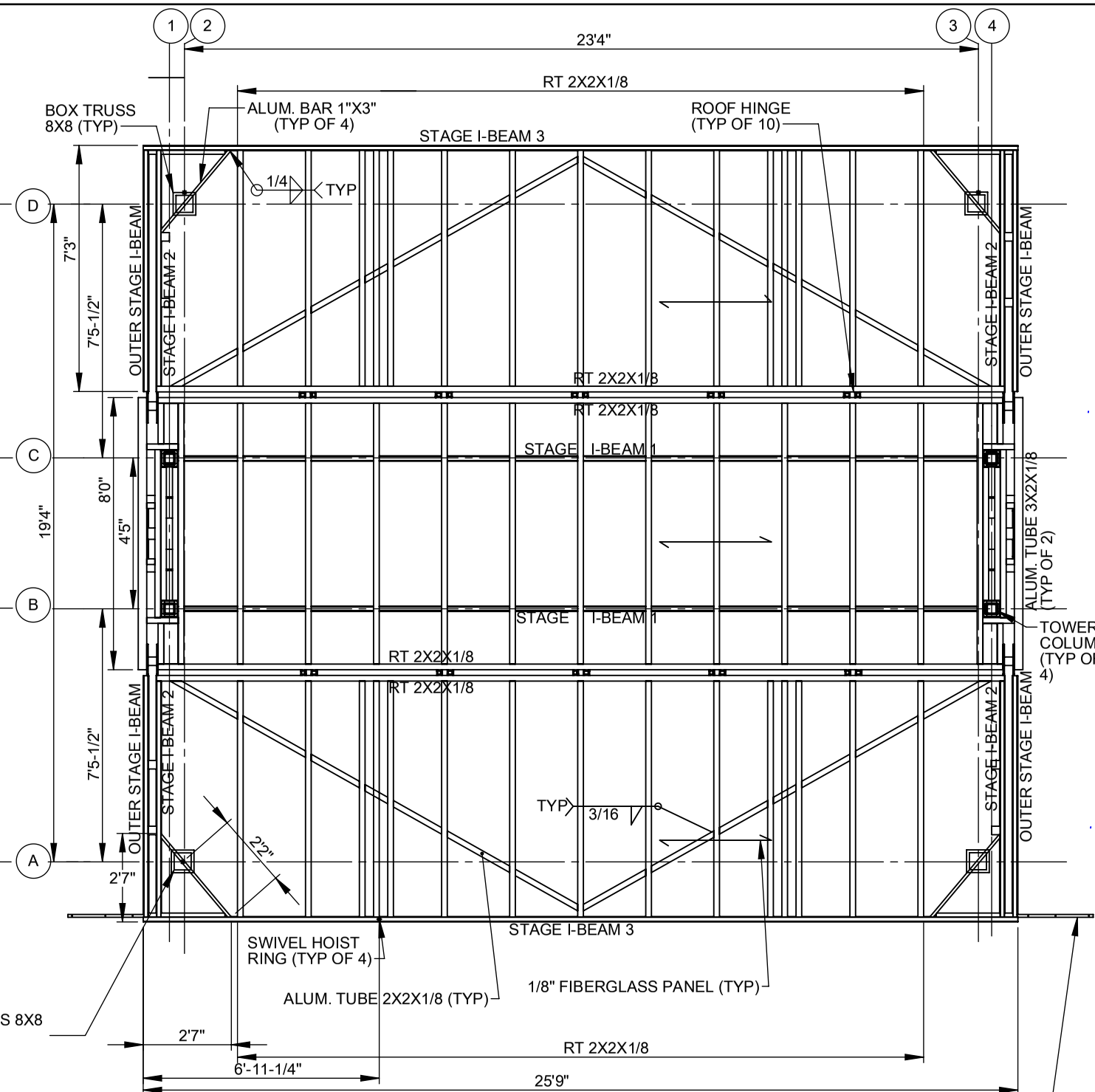
SNOW/ICE ACTION PLAN

1. AT NO TIME SHOULD SNOW/ICE BE ALLOWED TO ACCUMULATE ON THE SUN SHADE SYSTEM.

2. IF SNOW/ICE IS ALLOWED TO ACCUMULATE ON THE "SUN-SHADE" SYSTEM, ALL PERSONNEL SHOULD EVACUATE THE ASSEMBLY AND MAINTAIN SAFE CLEAR DISTANCE AS COLLAPSE OF THE ROOF IS POTENTIALLY IMMINENT.



PLATFORM FRAMING PLAN
SCALE 1:50



ROOF FRAMING PLAN
SCALE 1:50

NOTE:

1) Reference EL = Grade = EL 100'-0"

2) T/Floor EL = 103'-6" (+/-)

3) Framing material is aluminum unless otherwise noted.

4) See sheet S-5 for General Notes, High Wind Action Plan and Ballast Requirements

BEAM LOADING CHART

BEAM CALLOUT	UNIFORM LOAD (PLF)	1/2 POINTS (LBS)	1/3 POINTS (LBS)	1/4 POINTS (LBS)
BEAM 1	60	700	550	375
BEAM 2	80	---	---	---
BEAM 3	75	850	650	450
SPEAKER BEAM	----	2000	----	----

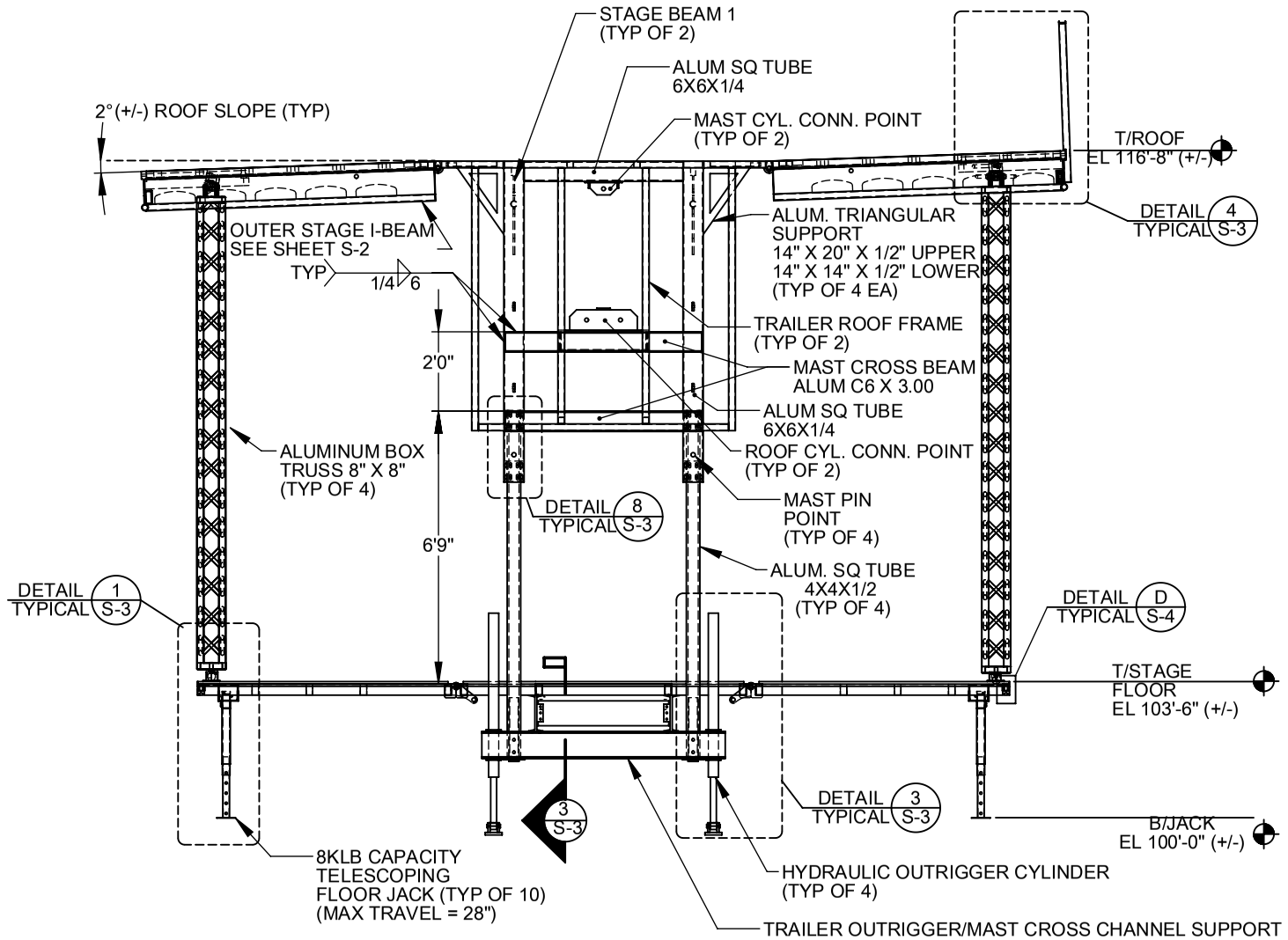
STAGE & ROOF FRAMING PLAN
APEX STAGES
APEX STAGE 24' X 20'
PITTSBURG, KS

DATE: 1/8/2018
DRAWN BY: STH
PROJECT: 17.534.02
FILE NAME: 2420FLALPG1.SLDDRW

PROGRESSIVE PRODUCTS INC.
APEX STAGES
a division of Progressive Products, Inc

DANIEL J. CLARK
LICENSED
21809
KANSAS
PROFESSIONAL ENGINEER
01/11/2018

S-1
1 of 2



ELEVATION A S-2
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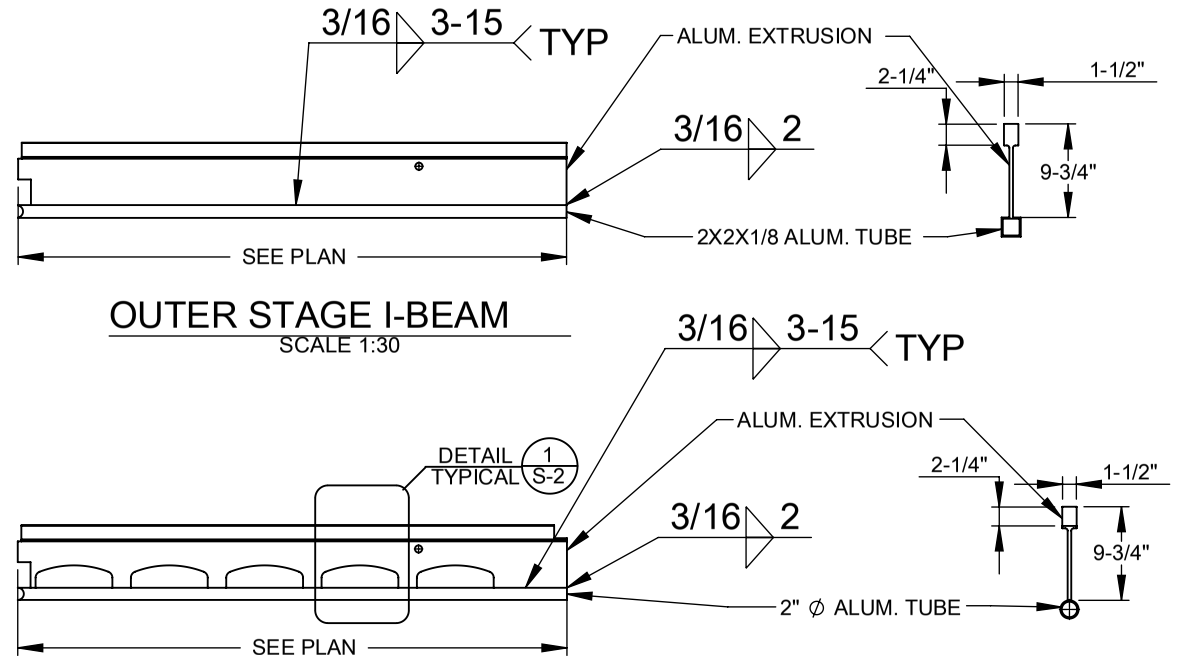
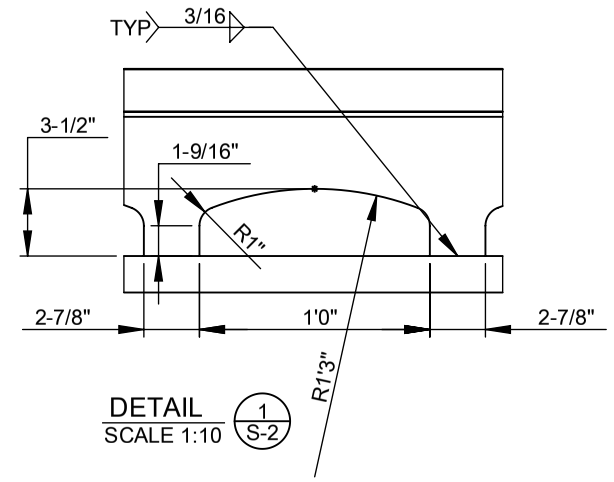
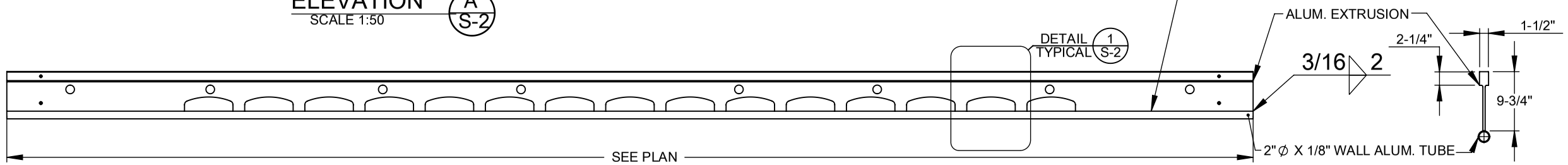
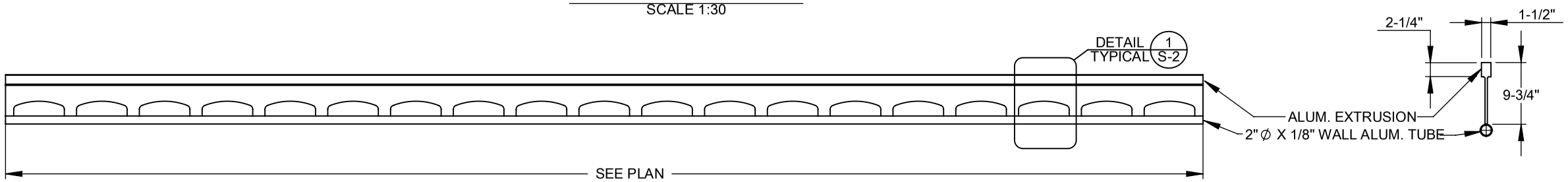








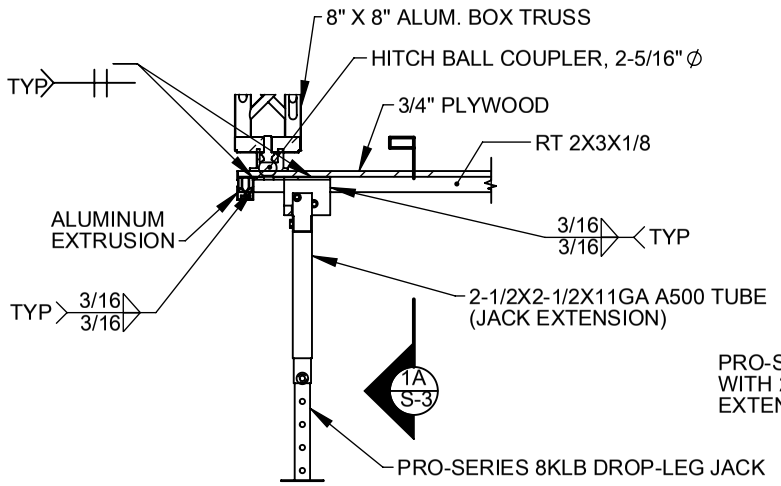
CLARK REDER
ENGINEERING
10091 Mosteller Lane
Cincinnati, Ohio 45069
(513) 851-1223
www.ClarkReder.com

REGISTERED PROFESSIONAL ENGINEER
JEFFERY M. REDER
C 70581
EXP. 6/30/2021
CIVIL
STATE OF CALIFORNIA
07/08/2019

ELEVATIONS, DETAILS
APEX STAGES
APEX STAGE 24' X 20'
PITTSBURG, KS

DATE: 5/2/2014
DRAWN BY: STH
PROJECT NUMBER: 14.534.05
FILE NAME: 2420FLALPG2SD.DWG

PROGRESSIVE PRODUCTS INC.
APEX STAGES
a division of Progressive Products, Inc



SECTION 1 S-3
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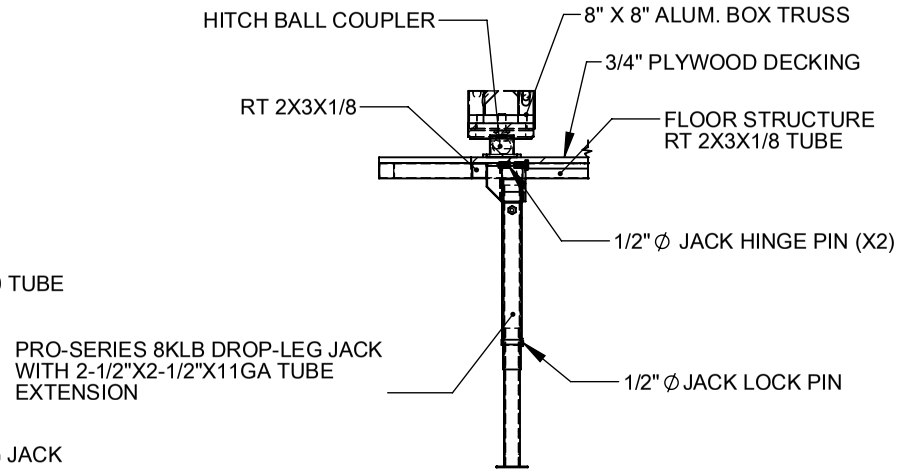

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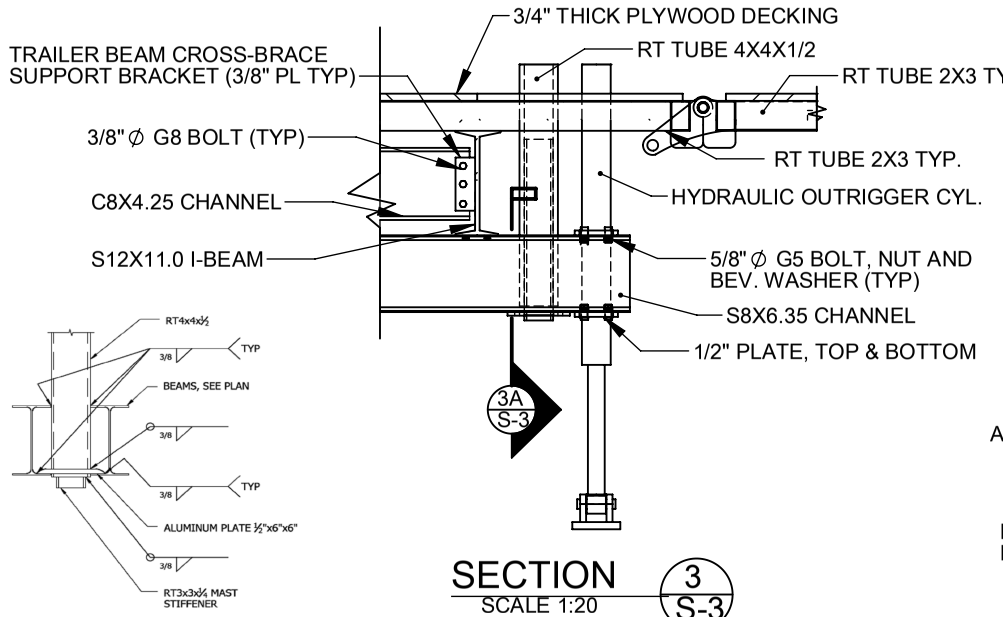

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SECTION 3 S-3
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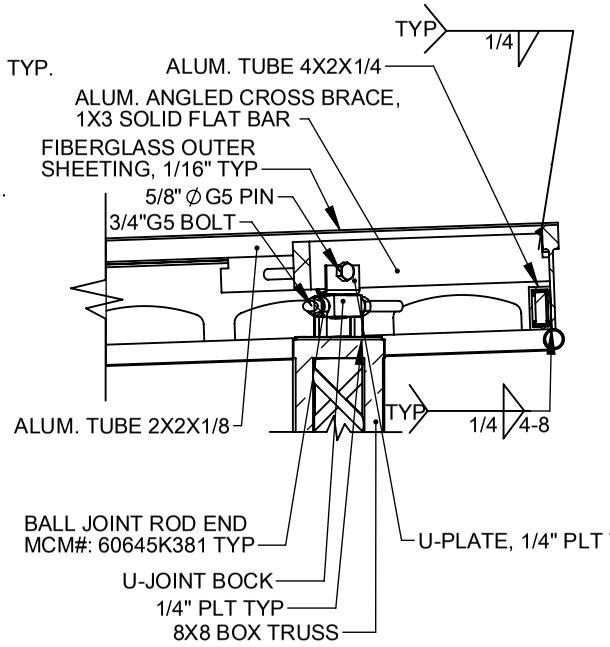

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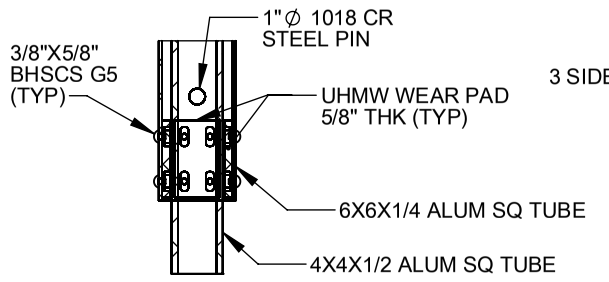

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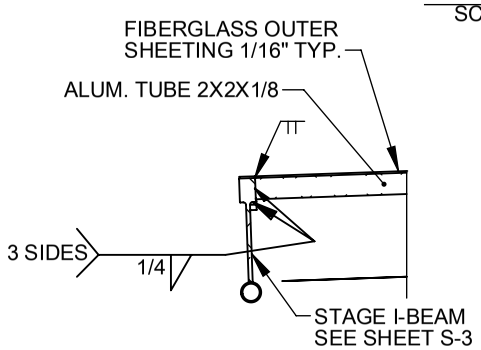

SECTION 5 S-3
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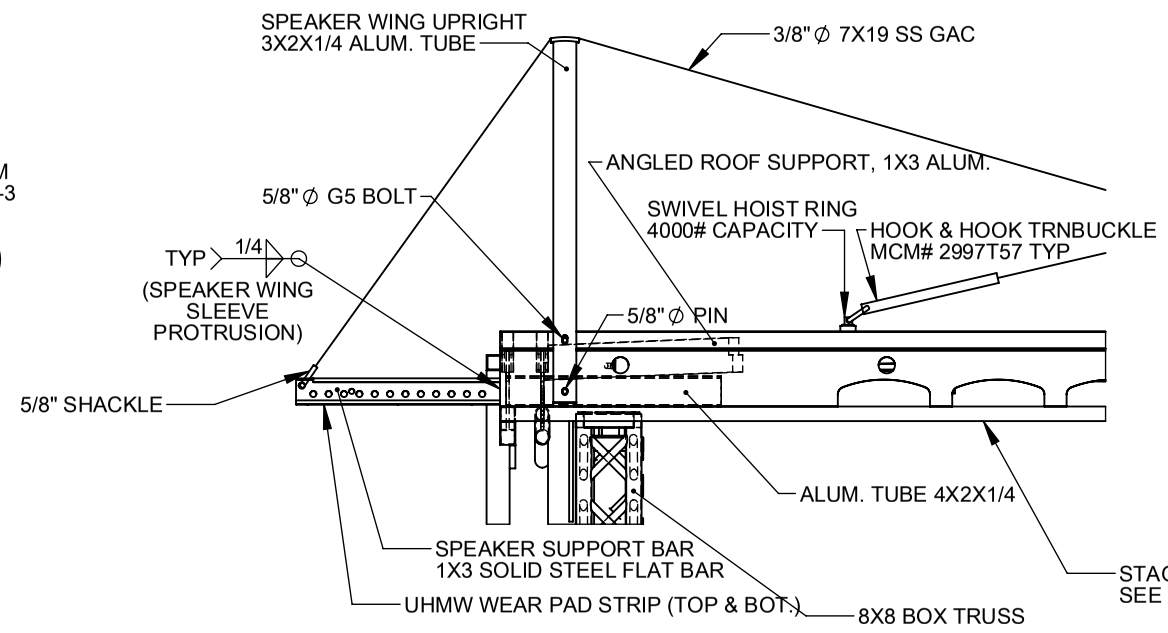

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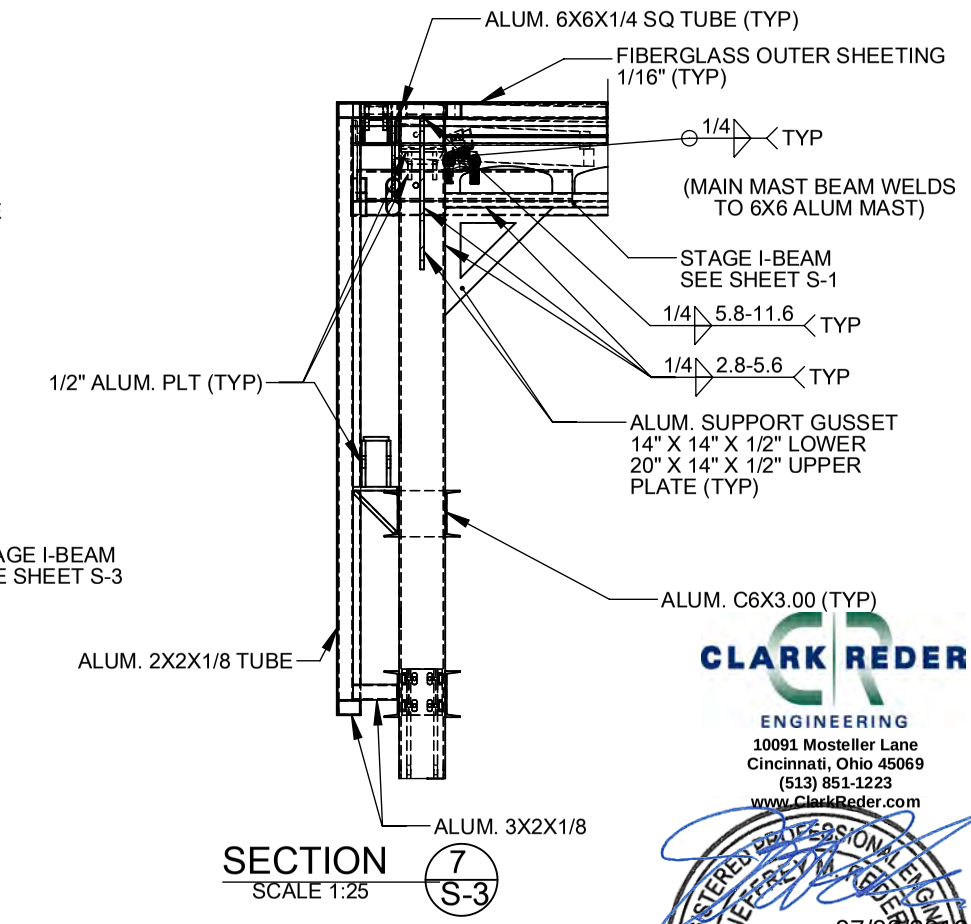

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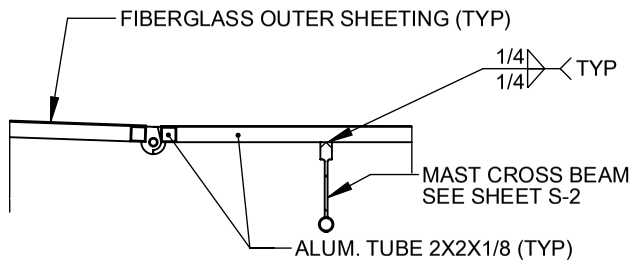

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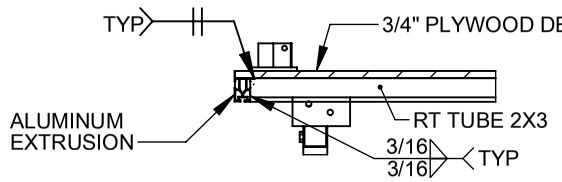

SECTION 2 S-3
SCALE 1:25

CLARK REDER ENGINEERING
10091 Mosteller Lane
Cincinnati, Ohio 45069
(513) 851-1223
www.ClarkReder.com

REGISTERED PROFESSIONAL ENGINEER
JEFFREY M. GRIFFIN
07/08/2019
C 70581
EXP. 6/30/2021
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FRAMING SECTIONS, DETAILS
APEX STAGES
APEX STAGE 24' X 20'
PITTSBURG, KS

DATE: 5/2/2014
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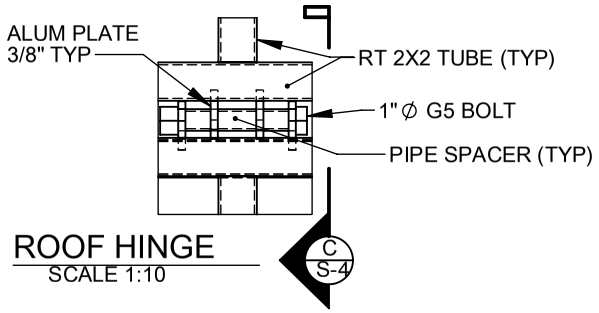
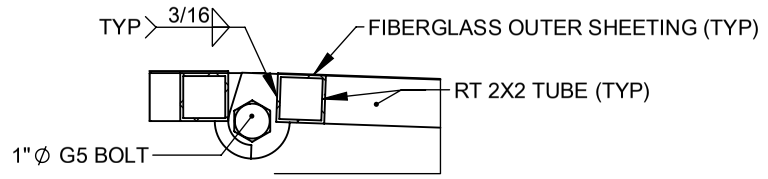
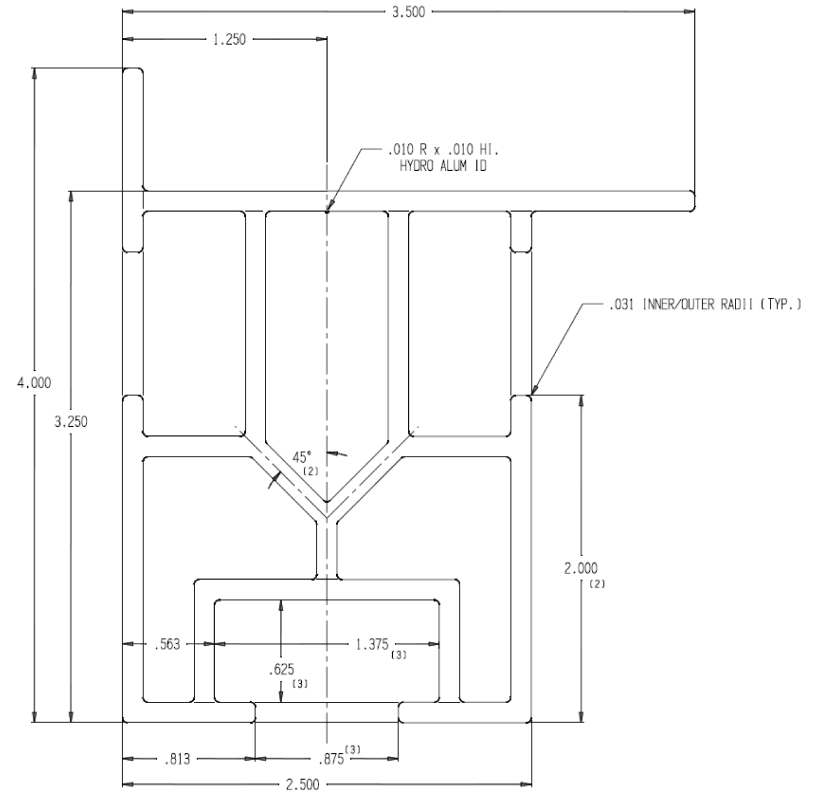
APEX STAGES
a division of Progressive Products, Inc



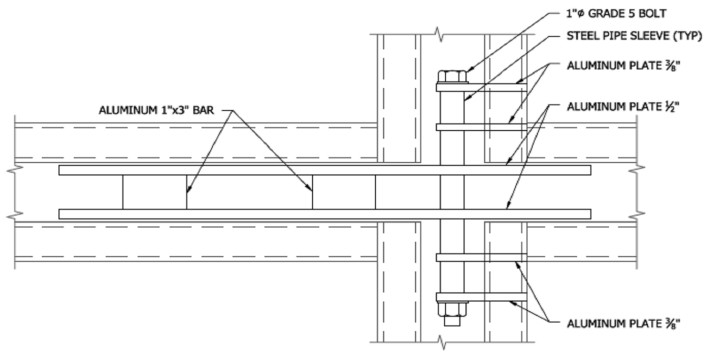
ROOF HINGE
SCALE 1:10 (C / S-4)



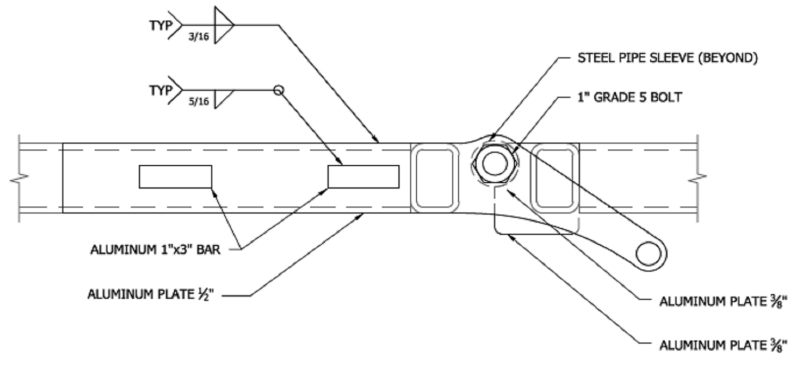
SECTION
SCALE 1:8 (C / S-4)



DETAIL (D / S-4)

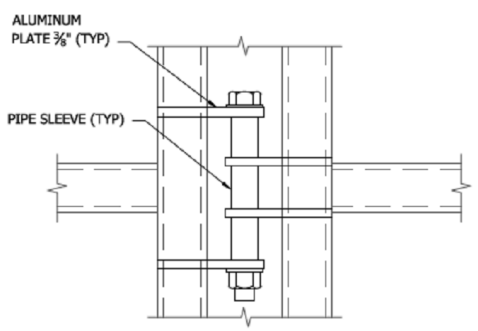


PLAN VIEW

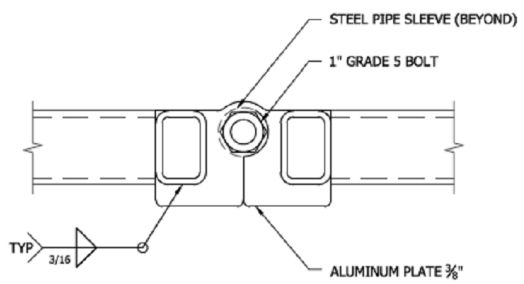


SECTION VIEW

PRIMARY FLOOR HINGE
SCALE 1:15



PLAN VIEW



SECTION VIEW

INTERMEDIATE FLOOR HINGE
SCALE 1:10

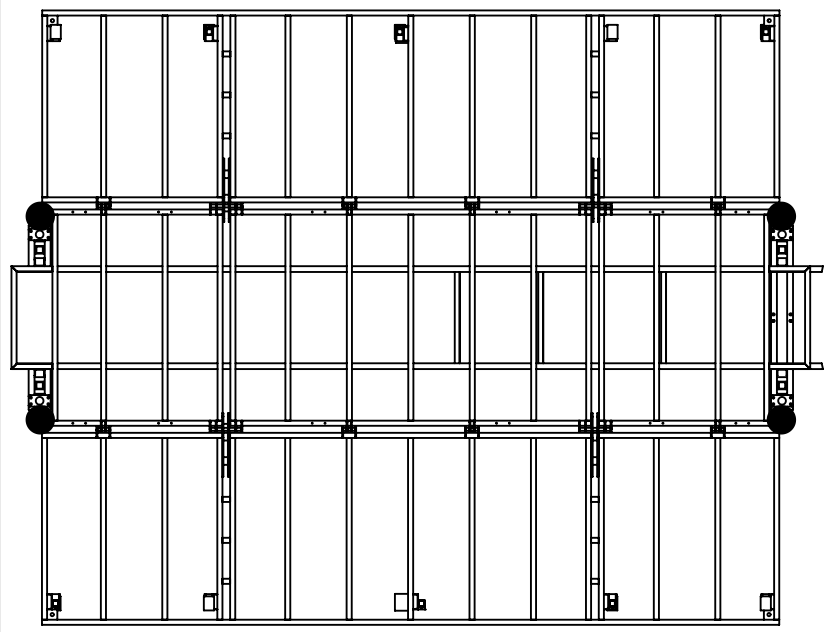
CLARK REDER ENGINEERING
10091 Mosteller Lane
Cincinnati, Ohio 45069
(513) 851-1223
www.ClarkReder.com

REGISTERED PROFESSIONAL ENGINEER
JEFFREY M. ROEDER
C 70581
EXP. 6/30/2021
CIVIL
STATE OF CALIFORNIA
07/08/2019

HINGE DETAILS
APEX STAGES
APEX STAGE 24' X 20'
PITTSBURG, KS

DATE: 5/2/2014
DRAWN BY: STH
PROJECT NUMBER: 14.534.05
FILE NAME: 2420FLALPG4SD.DWG

PROGRESSIVE PRODUCTS INC.
APEX STAGES
a division of Progressive Products, Inc



UPLIFT BALAST PLAN
SCALE 1:50

● -- INDICATES 1100# BALAST FOR AN OPEN STRUCTURE (NO SCRIM) @ 67.5MPH OR WITH SCRIM INSTALLED ON UPSTAGE WALL AND BANNER PACKAGE SCRIM INSTALLED AT 20MPH

● -- INDICATES 2500# BALAST WITH SCRIM INSTALLED ON UPSTAGE WALL @ 40MPH (BANNER PACKAGE SCRIM REMOVED AT 20MPH)

● -- INDICATES NO BALLAST REQUIRED FOR AN OPEN STRUCTURE (NO SCRIM) @ 50MPH OR WITH SCRIM INSTALLED ON UPSTAGE WALL AND BANNER PACKAGE SCRIM INSTALLED @20MPH.

NOTES:
1. SEE HIGH WIND ACTION PLAN ON THIS SHEET.

GENERAL STRUCTURAL NOTES

CODES AND REFERENCE
1. 2015 INTERNATIONAL BUILDING CODE
2. ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
3. ASCE 37-14 DESIGN LOADS ON STRUCTURES UNDER CONSTRUCTION
4. ANSI E1.21-2013 ENTERTAINMENT TECHNOLOGY, "TEMPORARY GROUND-SUPPORTED OVERHEAD STRUCTURES USED TO COVER THE STAGE AREAS AND SUPPORT EQUIPMENT IN THE PRODUCTION OF OUTDOOR ENTERTAINMENT EVENTS"
5. ANSI E1.2-2006 ENTERTAINMENT TECHNOLOGY, "DESIGN, MANUFACTURE AND USE OF ALUMINUM TRUSSES AND TOWERS"
6. ALUMINUM DESIGN MANUAL, 2015 EDITION
7. AISC STEEL MANUAL, 14TH EDITION

DESIGN LOADS
1. DEAD LOAD: SELFWEIGHT OF STRUCTURE

2. ROOF RIGGING LOADS:
A. SEE BEAM LOADING CHART ON SHEET S-1
NOTE: ROOF SKIN IS A SUN SHADE SYSTEM ONLY. IT HAS NOT BEEN DESIGNED FOR PERSONNEL ACCESS OR TO SUPPORT RAIN OR SNOW LOADS.

3. STAGE DECK LOADS:
A. LIVE LOAD: 50 PSF

4. WIND LOAD:**
A. DESIGN WIND SPEED: 67.5 MPH* (BARE STRUCTURE - NO SCRIMS ATTACHED)
B. DESIGN WIND SPEED : 40 MPH (WITH ONLY BACKDROP, ROOF 1 SIDEWALL SCRIM AND FRONT SCRIM ATTACHED)
C. DESIGN WIND SPEED: 20 MPH (WITH BACKDROP, ROOF 1 SIDEWALL SCRIM, FRONT SKIRT AND BANNER SCRIMS ATTACHED***)
D. EXPOSURE C
E. IMPORTANCE FACTOR: 1.0

5. SEISMIC LOADS DO NOT CONTROL THE DESIGN OF THIS STRUCTURE.

*115 MPH WIND SPEED REQUIREMENT REDUCED IN ACCORDANCE WITH ASCE 37-02 DUE TO THE TEMPORARY NATURE OF STRUCTURE.
** SEE UPLIFT BALLAST PLAN AND HIGH WIND ACTION PLAN THIS SHEET FOR REQUIRED BALLAST
***BANNER KIT CONSISTS OF (X1) UPPER CENTER CROSS BANNER, (X1) LEFT AND (X1) RIGHT SIDE BANNER (3 SCRIMS TOTAL).

CONSTRUCTION AND SAFETY

1. ENGINEER SHALL NOT BE RESPONSIBLE FOR MEANS, METHODS, OR SEQUENCE OF CONSTRUCTION UNLESS SPECIFICALLY STATED ON THE DRAWINGS.
2. ENGINEER HAS DESIGNED THE STRUCTURES FOR THEIR FINAL AS-BUILT CONDITION. ENGINEER IS NOT RESPONSIBLE FOR TEMPORARY STABILITY OF STRUCTURES DURING ERECTION UNLESS SPECIFICALLY STATED ON THE DRAWINGS.
3. STRUCTURE HAS BEEN DESIGNED AS A TEMPORARY STRUCTURE THAT SHALL BE IN PLACE FOR LESS THAN 6 WEEKS.

HIGH WIND ACTION PLAN FOR NO BALLAST INSTALLED

1. THE HIGH WIND ACTION PLAN SHALL BE IN EFFECT FOR THE ENTIRETY OF THE EVENT. AN EVENT SHALL BE DEFINED AS STARTING AT THE INITIAL COMMENCEMENT OF THE STRUCTURE INSTALLATION AND ENDING ONCE THE STRUCTURE IS COMPLETELY DISMANTLED.
2. A COMPETENT RESPONSIBLE PERSON FROM THE VENUE OR RIGGING COMPANY SHALL BE PRESENT FOR THE DURATION OF THE EVENT TO IMPLEMENT THE HIGH WIND ACTION PLAN.
3. AN ANEMOMETER SHALL BE PLACED AT THE TOP OF A STRUCTURE OR AN ADJACENT STRUCTURE AT A HEIGHT EQUIVALENT TO THE HEIGHT OF THE TOWER. THE ANEMOMETER SHALL BE LOCATED WITHIN 50 YARDS OF THE STRUCTURE.
4. NOTED WINDS SPEEDS ARE 3 SECOND GUSTS IN ACCORANCE WITH ASCE 7.
5. SEE UPLIFT BALLAST PLAN THIS SHEET FOR REQUIRED BALLAST.
6. WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 15 MPH: A TEAM OF QUALIFIED PERSONNEL SHALL BE PUT ON ALERT.
7. WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 20 MPH: ALL SIDEWALL SCRIM SHALL BE REMOVED FROM THE SYSTEM INCLUDING THE BANNER SCRIM CONCEALING THE SPEAKER WING WIRE ON TOP OF STAGE AND THE BANNER SCRIM ON THE SPEAKER WINGS. ALL VIDEO WALLS AND LARGE SPEAKER CLUSTERS SHALL BE LOWERED TO THE GROUND AND SECURED. LOWERING OF SCRIM OR EQUIPMENT SHALL BE DONE FROM THE GROUND BY MEANS OF REMOTELY ACTIVATED EQUIPMENT SUCH AS MOTORS OR MECHANICAL RELEASES.
8. WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 50 MPH: ALL SHOW OPERATIONS SHALL CEASE AND THE IMMEDIATE AREA SHALL BE EVACUATED.
9. THE HIGH WIND ACTION PLAN SHALL BE POSTED AT A CONSPICUOUS AREA ON SITE. IT MUST BE AVAILABLE AT ALL TIMES TO VENUE OPERATORS AND CREW.

HIGH WIND ACTION PLAN FOR 1100# BALLAST INSTALLED @ 4 LOCATIONS

1. THE HIGH WIND ACTION PLAN SHALL BE IN EFFECT FOR THE ENTIRETY OF THE EVENT. AN EVENT SHALL BE DEFINED AS STARTING AT THE INITIAL COMMENCEMENT OF THE STRUCTURE INSTALLATION AND ENDING ONCE THE STRUCTURE IS COMPLETELY DISMANTLED.
2. A COMPETENT RESPONSIBLE PERSON FROM THE VENUE OR RIGGING COMPANY SHALL BE PRESENT FOR THE DURATION OF THE EVENT TO IMPLEMENT THE HIGH WIND ACTION PLAN.
3. AN ANEMOMETER SHALL BE PLACED AT THE TOP OF A STRUCTURE OR AN ADJACENT STRUCTURE AT A HEIGHT EQUIVALENT TO THE HEIGHT OF THE TOWER. THE ANEMOMETER SHALL BE LOCATED WITHIN 50 YARDS OF THE STRUCTURE.
4. NOTED WINDS SPEEDS ARE 3 SECOND GUSTS IN ACCORANCE WITH ASCE 7.
5. SEE UPLIFT BALLAST PLAN THIS SHEET FOR REQUIRED BALLAST.
6. WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 15 MPH: A TEAM OF QUALIFIED PERSONNEL SHALL BE PUT ON ALERT.
7. WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 20 MPH: ALL SIDEWALL SCRIM SHALL BE REMOVED FROM THE SYSTEM INCLUDING THE BANNER SCRIM CONCEALING THE SPEAKER WING WIRE ON TOP OF STAGE AND THE BANNER SCRIM ON THE SPEAKER WINGS. ALL VIDEO WALLS AND LARGE SPEAKER CLUSTERS SHALL BE LOWERED TO THE GROUND AND SECURED. LOWERING OF SCRIM OR EQUIPMENT SHALL BE DONE FROM THE GROUND BY MEANS OF REMOTELY ACTIVATED EQUIPMENT SUCH AS MOTORS OR MECHANICAL RELEASES.
8. WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 50 MPH: ALL SHOW OPERATIONS SHALL CEASE AND THE IMMEDIATE AREA SHALL BE EVACUATED.
9. THE HIGH WIND ACTION PLAN SHALL BE POSTED AT A CONSPICUOUS AREA ON SITE. IT MUST BE AVAILABLE AT ALL TIMES TO VENUE OPERATORS AND CREW.

HIGH WIND ACTION PLAN FOR 2500# BALLAST INSTALLED @ 4 LOCATIONS

1. THE HIGH WIND ACTION PLAN SHALL BE IN EFFECT FOR THE ENTIRETY OF THE EVENT. AN EVENT SHALL BE DEFINED AS STARTING AT THE INITIAL COMMENCEMENT OF THE STRUCTURE INSTALLATION AND ENDING ONCE THE STRUCTURE IS COMPLETELY DISMANTLED.
2. A COMPETENT RESPONSIBLE PERSON FROM THE VENUE OR RIGGING COMPANY SHALL BE PRESENT FOR THE DURATION OF THE EVENT TO IMPLEMENT THE HIGH WIND ACTION PLAN.
3. AN ANEMOMETER SHALL BE PLACED AT THE TOP OF A STRUCTURE OR AN ADJACENT STRUCTURE AT A HEIGHT EQUIVALENT TO THE HEIGHT OF THE TOWER. THE ANEMOMETER SHALL BE LOCATED WITHIN 50 YARDS OF THE STRUCTURE.
4. NOTED WINDS SPEEDS ARE 3 SECOND GUSTS IN ACCORANCE WITH ASCE 7.
5. SEE UPLIFT BALLAST PLAN THIS SHEET FOR REQUIRED BALLAST.
6. WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 15 MPH: A TEAM OF QUALIFIED PERSONNEL SHALL BE PUT ON ALERT.
7. WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 20 MPH: ALL BANNER SCRIM SHALL BE REMOVED FROM THE SYSTEM INCLUDING THE BANNER SCRIM CONCEALING THE SPEAKER WING WIRE ON TOP OF STAGE AND THE BANNER SCRIM ON THE SPEAKER WINGS.
8. WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 40 MPH: ALL THE REMAINING SIDEWALL SCRIM SHALL BE REMOVED FROM THE SYSTEM. ALL VIDEO WALLS AND LARGE SPEAKER CLUSTERS SHALL BE LOWERED TO THE GROUND AND SECURED. LOWERING OF SCRIM OR EQUIPMENT SHALL BE DONE FROM THE GROUND BY MEANS OF REMOTELY ACTIVATED EQUIPMENT SUCH AS MOTORS OR MECHANICAL RELEASES.
9. WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 50 MPH: ALL SHOW OPERATIONS SHALL CEASE AND THE IMMEDIATE AREA SHALL BE EVACUATED.
10. THE HIGH WIND ACTION PLAN SHALL BE POSTED AT A CONSPICUOUS AREA ON SITE. IT MUST BE AVAILABLE AT ALL TIMES TO VENUE OPERATORS AND CREW.

RIGGING
1. BRIDLES SHALL NOT BE USED UNLESS SPECIFICALLY NOTED BY THE ENGINEER OF RECORD.
2. DO NOT EXCEED THE ALLOWABLE RIGGING LOADS SHOWN ON SHEET S-1 WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER OF RECORD.

STRUCTURAL STEEL
1. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS NOTED OTHERWISE ON THE DRAWINGS:
A. MISC PLATE, BAR, AND ANGLES: ASTM A36, FY = 36 KSI
B. BOLTS OR SCAFFOLD CONNECTION PINS: SAE J429 GRADE 5 BOLTS (FY=92 KSI) UNLESS NOTED OTHERWISE
2. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY LATEST EDITION.
3. FIELD CONNECTIONS SHALL BE BOLTED OR CONNECTED WITH APPROVED SCAFFOLD CONNECTORS.

ALUMINUM
1. ALUMINUM SHALL CONFORM TO THE FOLLOWING UNLESS NOTED OTHERWISE ON THE DRAWINGS:
A. MEMBER ALLOY: 6061-T6 UNLESS NOTED OTHERWISE
B. MEMBER ALLOY FOR STAGE ROOF BEAM EXTRUSIONS; 6063-T5
C. MEMBER ALLOY FOR STAGE DECK EXTRUSIONS; 6063-T6
D. WELD FILLER ALLOW: 4043 (MIN)
2. ALL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO THE ALUMINUM ASSOCIATION ALUMINUM DESIGN MANUAL, 2005 EDITION.
3. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY LATEST EDITION.
4. FIELD CONNECTIONS SHALL BE BOLTED UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS.

WIRE ROPE AND RIGGING ACCESSORIES
1. WIRE ROPE 3/8" OR LESS IN DIAMETER: 7X19 GAC, MEETING FEDERAL SPEC. RR-W-410E
2. WIRE ROPE 7/16" OR GREATER IN DIAMETER: 6X19 IWRC, MEETING FEDERAL SPEC. RR-W-410D, TYPE 1 CLASS 2
3. SHACKLES: GALVANIZED, SCREW PIN ANCHOR TYPE, ASTM A153
4. TURNBUCKLES: GALVANIZED, ASTM F-1145
5. FORGED WIRE ROPE CLIPS: GALVANIZED, MEETING FEDERAL SPEC. FF-C-450 TYPE I CLASS I
6. WIRE ROPE THIMBLES: GALVANIZED, MEETING FEDERAL SPEC. FF-T-276B TYPE II
7. WIRE ROPE THIMBLES: GALVANIZED, MEETING FEDERAL SPEC. FF-T-276B TYPE II
8. RATCHET STRAPS:
a. RATCHET STRAPS SHALL BE INSTALLED PER THE MANUFACTURER'S WRITTEN INSTRUCTIONS TO DEVELOP THE RATED WORKING LOAD OF THE STRAP.
b. RATCHET STRAPS WITH OPEN ENDED HOOKED CONNECTION SHALL HAVE A POSTIIVE CONNECTION TO THE ATTACHMENT POINT. EXAMPLE: USE A 5/8" SHACKLE BETWEEN THE BARS OF A J-HOOK.

FOUNDATIONS
1. PER CLIENTS REQUEST, THE FOUNDATION DESIGN AND GENERAL FOUNDATION NOTES BASED ON THE ASSUMPTION OF FAVORABLE SOIL CONDITIONS. ALL FOUNDATION ASSEMBLIES SHALL BEAR ON LEVEL (WITHIN 1 IN 12) GROUND

INSPECTIONS
1. THE MOBILE STAGE AND ALL TRUSS UNITS, SCAFFOLD AND/OR OTHER RIGGING EQUIPMENT SHALL BE VISUALLY INSPECTED PRIOR TO ERECTION. DAMAGED OR CORRODED EQUIPMENT SHALL NOT BE USED. FIELD MODIFICATIONS SHALL BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO INSTALLATION.

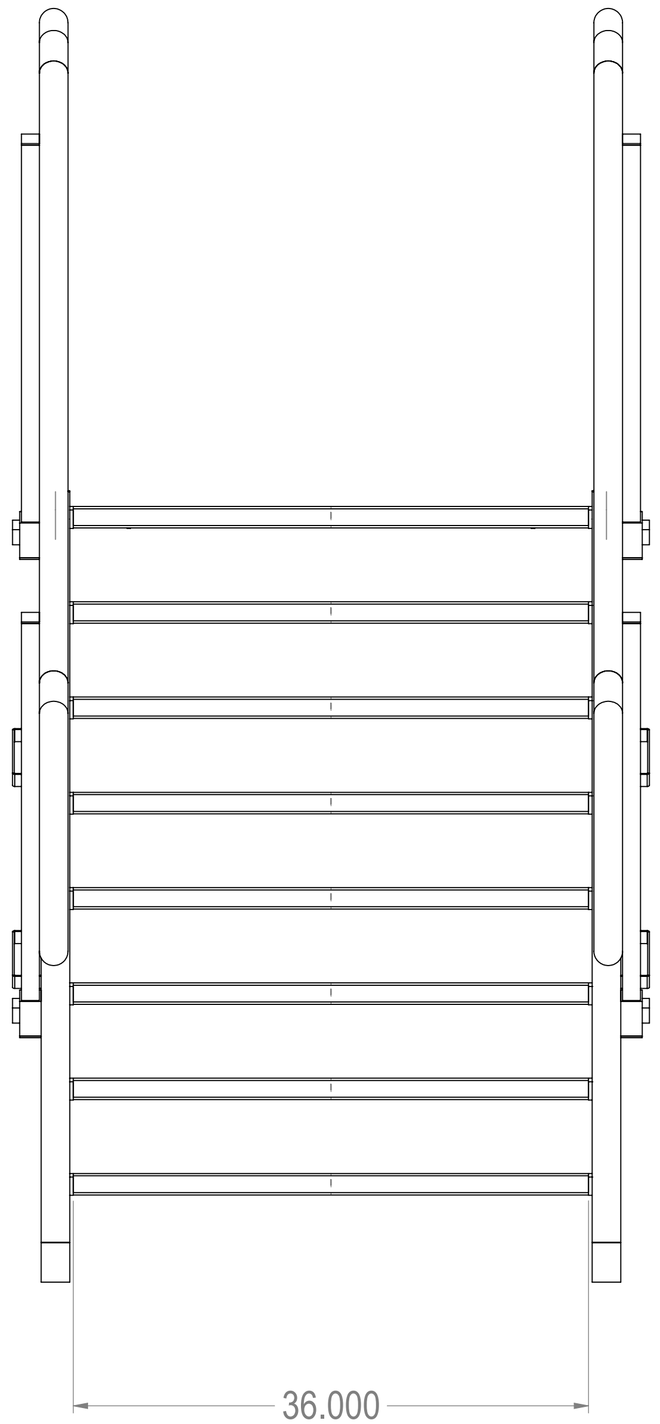
DANIEL J. CLARK
LICENSED
21809
KANSAS
PROFESSIONAL ENGINEER
01/11/2018

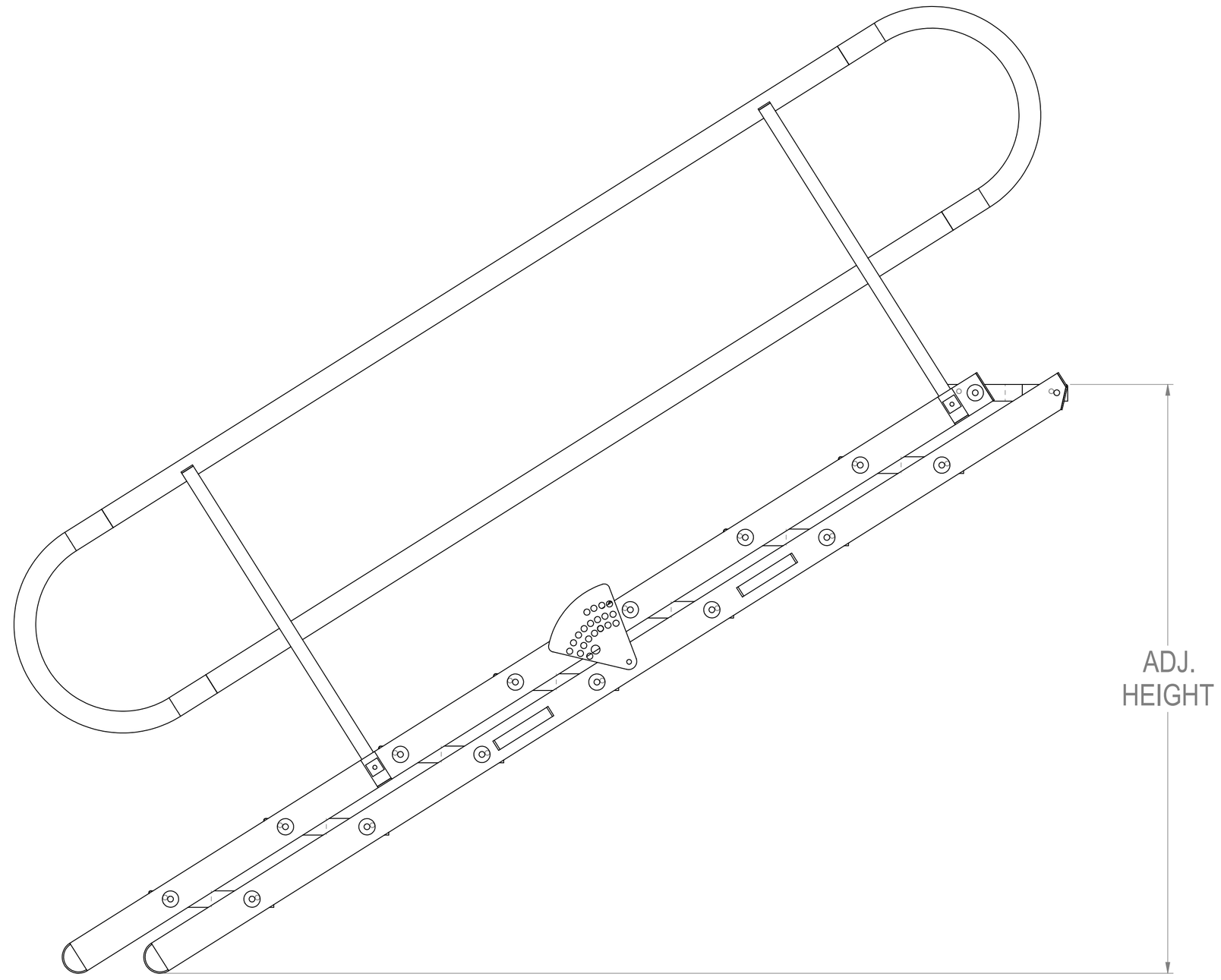
GENERAL STRUCTURE NOTES
APEX STAGES
APEX STAGE 24' X 20'
PITTSBURG, KS

DATE: 1/8/2018
DRAWN BY: STH
PROJECT NUMBER: 17.534.02
FILE NAME: 2420FLALPG2.SLDDRW

PROGRESSIVE PRODUCTS INC.
APEX STAGES
a division of Progressive Products, Inc

S-2
2 of 2





Material: N/A
Finish: N/A

1 NEEDED PER 2420 STAGE

Stairs
- Max load of 250lbs per step
- Max load of 600lbs per stair unit
- Stairs are 6063 extruded aluminum
- Mill finish

PROTOTYPE NUMBER

REV	DATE	DESCRIPTION	BY

STANDARD TOLERANCES

DIMENSION	+ or -
.XXXX	.0050
.XXX	.015
FRACTIONAL	1/32
ANGULAR	1/2 °

DATE	1-23-2009
DRAWN	RVH
REVIEWED	
SCALE	1:8
SHEET	1 OF 1

DESCRIPTION:
8 STEP
ALUMINUM STAIRS

DWG#: 8 STEP

REV.

SIZE
D

APEX STAGES
3305 AIRPORT CIRCLE
PITTSBURG, KS 66762
P: (620) 235-1712 F: (620) 235-1772

Haulotte GROUP BILJAX

125 TAYLOR PARKWAY
ARCHBOLD, OH 43502
PHONE: (419) 445-8915
FAX: (419) 445-0367
www.biljax.com

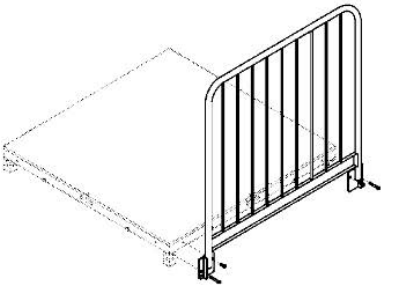
Guard Rail / Bracing

Guard Railing

4' Vertical Guard Rail

2' Vertical Guard Rail

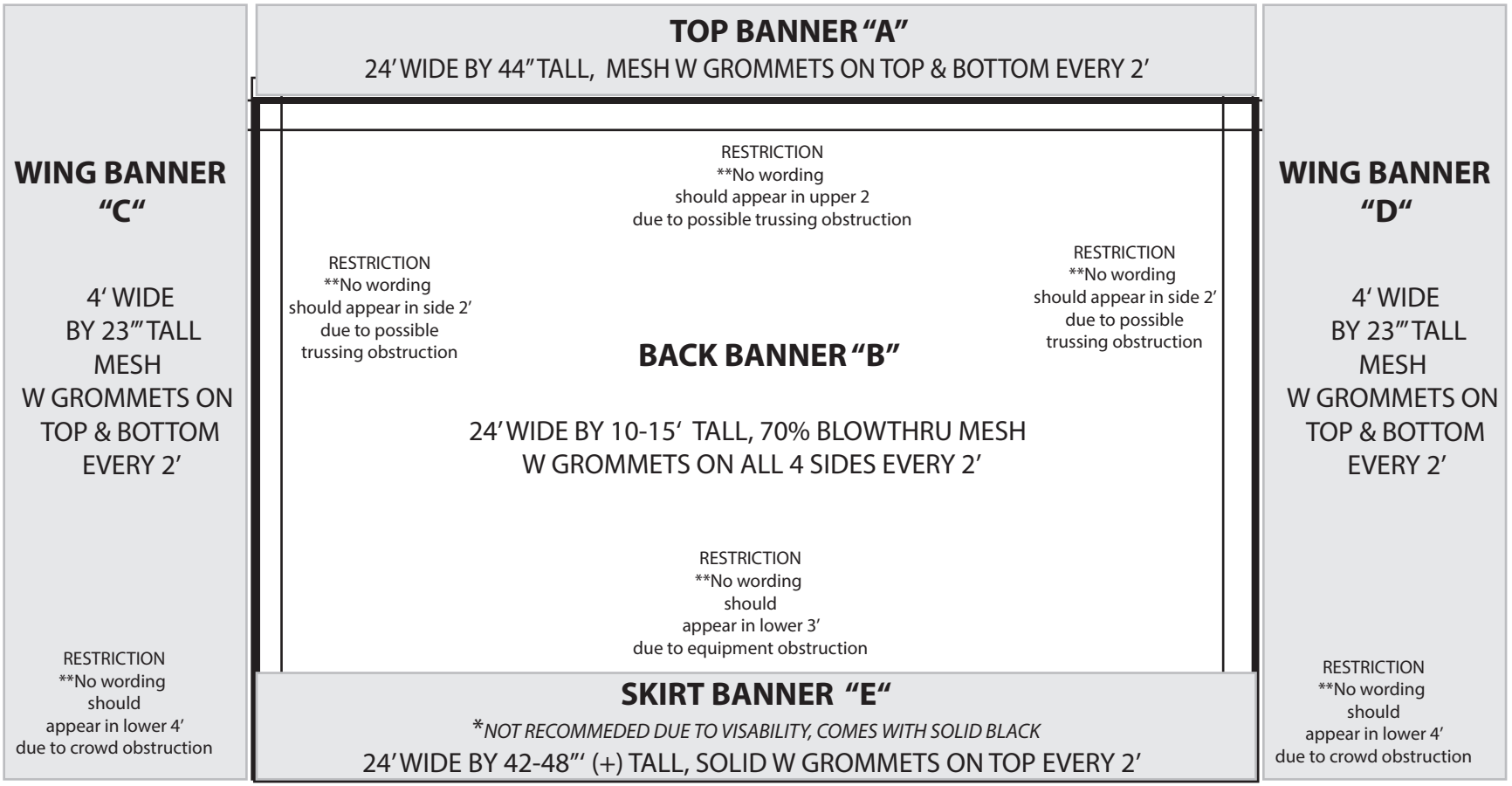
Description	Weight
Guard Rail Panel, Vertical, 2'W x 42"H	22
Guard Rail Panel, Vertical, 4'W x 42"H	32



BANNER OPTIONS for

APEX 2424

updated 1/24/2017 tm



** Barricades may obstruct the lower 4' across the lower stage as well as attendees

Questions? call 786-504-2369 / 786-255-4949